

Sept. 1, 1986

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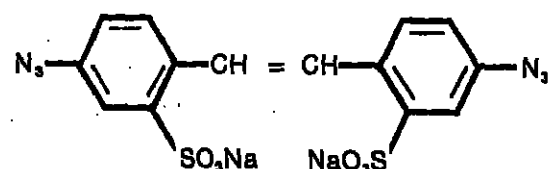
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CMR MARKET INDEX

CHEMICAL MARKETING	Aug. 29, 1986	152.42
REPORTER's market index of chemicals and related materials (100=1974 average), based on 97 key commercial chemicals, appears alongside with data for two weeks ago, last month and last year.	Aug. 22, 1986	152.62
	Aug. 1, 1986	152.45
	Aug. 30, 1985	158.85

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CHEMICAL MARKETING

MALEIC: Market is called snug following half. CANOLA: P&G's canola venture rolls the industry. TIO: Du Pont and SCM expected to release next quarter. MENTHOL: Imports of flavoring are 1986.

Chemical Marketing Reporter

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NEWSPAPER

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INSIDE CMR

PREVIEWING THE 'K': The Big Three German chemical companies have their plans well in hand for triennial plastics show in Dusseldorf. Page 3

TOXIC WASTE: Recycling is seen as the only way to escape a "grim treadmill" by environmentalists. Twenty states take the lead. Page 5

PHOSPHATE OUTLOOK: Analysts say that despite current lackluster demand and poor pricing the US phosphate picture should improve. Page 7

CEUS EXPANSION: The biotechnology company will form a wholly owned subsidiary to make and market therapeutic products in Europe. Page 19

OUTHAZARDS: Dr. Irving Selikoff urges legislators to approve proposed law to require notification of occupational disease risks. Page 4

FERMENTA SALE: Monsanto sets a deadline for acquisition of Swedish concern. The Italian company says it has alternative on standby. Page 3

SEPARATORS: Monsanto unit introduces separators said to be 200 to 400 percent more efficient than current ones. Page 7

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In 1990, for example, Bayer expects world consump-

Continued on Page 33

The first large bridge to be reinforced with 'Polystal,' a high tensile strength glass fiber composite made by Bayer AG, was opened to traffic in July in Düsseldorf. The material boasts lower elastic modulus than tensioned steel, is highly elastic and resists corrosion.



Chemical Marketing Reporter

SEPTEMBER 8, 198

Polystyrene Demand Exceeds Expectation

Faced with healthy demand prospects, negligible profits, and the need to maintain present production rates, all major US producers plan to raise selling prices for general purpose and high-impact molding and extrusion grades of solid polystyrene by 3 cents per pound effective October 1.

Earlier attempts to raise polystyrene
Continued on Page 35

Cyanamid Isocyanates Based On a Non-Phosgene Route

The major use for aliphatic isocyanates and polyisocyanates are as light stabilizing agents in protective coatings for building exteriors, transportation equipment and other uses where light stability is important.

slon resistance and chemical resistance is required.

The plant marks Cynamid's first venture into isocyanate production, but the company is well-positioned in a number of related fields. The company produces, and markets, polyurethane elastomers derived from isocyanates; and is also well established in the coatings market through the production of melamine cross-linking resins.

In addition to selling its aliphatic isocyanates to the protective coatings market, Cyanamid plans to sell TMDI and TMI to the elastomers market and is keenly interested in the reaction injection-molded/auto parts market. Mr. Crum says Cyanamid has formed a joint venture with the Belgian firm Recticell to market light-stable RIM products. Mr. Crum says auto makers have expressed interest in modulated windows, in-

DOW POLYSTYRENE: Dow recently led an attempt to improve profitability in the polystyrene business by hiking its prices. A number of other producers have followed suit.

Job Hazard Warning Urged For Workers by Dr. Selikoff

An early warning system for workers whose health has been put at risk by on-the-job exposure to hazardous substances can save lives and should be created, an occupational disease expert has told Congress. Dr. Irving Selikoff urged House members in a letter to approve the High Risk Occupational Disease Notification and Prevention Act, a bill that would establish a Federal program to identify specific worker populations at high risk of disability and death from diseases caused by exposure to toxic substances in the workplace.

The House is expected to vote on the measure this month. A similar bill is pending in the Senate Labor and Human Resources Committee.

The legislation, which is backed by labor unions but opposed by the chemical industry, would also make medical testing and counseling available to workers in the high risk category.

Chemical Manufacturers Association and National Association of Manufacturers have testified against the proposals, arguing they would duplicate efforts of other governmental agencies while imposing new, costly burdens on industry.

Dr. Selikoff told the lawmakers there is a growing identification of cancer with occupation.

He cited studies that linked liver cancer to exposure to vinyl chloride, bladder cancer to benzidine used in dye plants, mesothelioma from exposure to asbestos and several other job-associated cancers.

Dr. Selikoff noted that since most cancer is environmental in origin, the ideal solution would be prevention. But he emphasized that early awareness of the risk can help many exposed workers minimize the risk of contracting cancer.

Continuing medical surveillance of high risk groups, another feature of the legislation, can assure early detection and treatment, Dr. Selikoff said.

Carbide Signs Letter On Acetic Plant Sale

Union Carbide Corporation has signed a letter of intent for the sale of the assets of its Brownsville, Tex., chemical manufacturing facility to R.T.O. Systems, Inc., an industrial development corporation based in Brownsville.

The agreement is expected to become final by the end of this year. Proceeds of the sale will be used to reduce corporate debt.

Under terms of the sale, Union Carbide will have an option to restart an acetic acid production unit on the site.

Union Carbide operated at the Brownsville site from 1958 to 1983.

Fluorocarbons Output Rising

The 1985 production of chlorofluorocarbons 11 and 12 increased from 1,531 million pounds (694,000 thousand metric tons) in 1984 to 1,550 million pounds (703,200 thousand metric tons) in 1985, according to a recent report prepared by Grant Thornton and Company.

The production figures are reported to Grant Thornton by 21 companies in North America, South America, Western Europe, Japan, Australia, Africa, and India. Nineteen of these reporting companies fund the Fluorocarbon Program Panel (FPP) of the Chemical Manufacturers Association, which supports an international program of research on the potential atmospheric effects of CFCs and also sponsors this annual report. Grant Thornton and Company, an independent accounting firm, compiles the figures from confidential reports submitted by the reporting companies.

No estimates have been made of world production since 1983 due to lack of information on recent CFC production in the USSR, Eastern European countries, and the People's Republic of China. FPP and other organizations are continuing their efforts to obtain this information.

Polyester Facility Slated for Pakistan

Gatron Industries Ltd. (Karachi) has awarded Zimmer AG a contract to build a polyester plant at Hub Chowki, Pakistan. The contract value amounts to around \$12 million.

The plant, which will incorporate Zimmer's continuous polycondensation process technology and use pure terephthalic acid and ethylene glycol as feedstocks, is designed for a production of 32 tons of polyester chips a day.

Most of these chips will be used by two polyester-POY high speed spinning plants earlier built by Zimmer and which were commissioned in 1984 and 1986, respectively.

Davy McKee's Frankfurt engineering and construction company will supply the process and know-how, the entire engineering and the equipment and will be responsible for the supervision of erection and start-up that is scheduled for the second half of 1988.

Terpene Phenolics Expanded by RCI

The Newport Division of Reichhold Chemicals, Inc. has doubled its production capacity for terpene-phenolics to 20 million pounds with the opening of a fully automated plant in Pensacola, Fla., that will produce a line of terpene-phenol resins, including its recently improved "Nirex V-2040" resin, primarily for adhesives applications.

The plant, said to be one of the first microprocessor controlled terpene-phenolic plants, is controlled by a Foxboro Spectrum Process Control computer operated by one person.

The computer control valves, temperature and temperature pressure flow. Automation extends throughout the plant, including a modern flaker belt that carries the liquid resins as they solidify and go into the packaging operation.

"Recent technological advances in the adhesives industry have resulted in significantly improved products and processes, creating unique opportunities for producers with plants that capitalize on the latest and most efficient technologies," according to Ellis Fleming, director of manufacturing for Newport.

Generics Reporting Formalized by EPA

Environmental Protection Agency's toxic substances office has proposed a rule that will establish predictable generic reporting and recordkeeping requirements applicable to all chemicals and also initiates a new standardized industry reporting form that can be adapted to specific substances.

The Comprehensive Assessment Information Rule (CAIR) should reduce duplicative reporting by industry, familiarization time by businesses in understanding and responding to information requests from government. The rule should also reduce EPA resources needed to develop information-gathering rules and process the reported data, the agency says.

In addition to the model rule, EPA is also proposing information requirements for 46 chemicals.

However, the agency says since it expects to add other chemicals to the rule in the future, any chemical manufacturer, importer or processor is potentially subject to the proposal.

EPA also says it is offering the use of CAIR to other Federal agencies for their information-gathering needs.



J. Murfee Butler, who has been appointed group operations officer of W.R. Grace & Co.'s industrial chemicals group, with responsibility of the newly-formed Interamerican Division. This division is the result of a combination of the formerly separate Pacific and Latin American specialty chemical operations.

Grace Reorganizes In Pacific, S. America

W.R. Grace & Co. has reorganized its Pacific and Latin American specialty chemical operations into two divisions — the Pacific Division and the Interamerican Division. Previously, these businesses had operated as the Pacific-Interamerican Division.

J. Murfee Butler, a senior vice-president of Grace, has been appointed a group operations officer of the company's industrial chemicals group, with responsibility for the Pacific and Interamerican divisions. Lawrence R. Veator, Jr. will serve as president of the Pacific Division and Antonio R. Ferre will become president of the Interamerican Division.

In commenting on the reorganization, Robert W. Samuels, a Grace executive vice-president and head of the company's specialty chemical operations, said, "This decision recognizes the vast geographical responsibility of the Pacific and Latin American regions. Our aim is to better concentrate resources in the two different areas."

Industrial Gas Plant Supplied to Japan

Air Products & Chemicals, Inc., has signed a contract with Nippon Steel Corporation for the supply of cryogenic technology and process equipment, technical assistance and start-up services for a new air separation facility at Nippon Steel's Yawata Works in Tobata, Japan.

Nippon Steel's plant and machinery division (PMD) will work with Air Products on the project, supplying additional equipment and construction services.

The facility, scheduled for start-up in the second half of 1987, will produce 25,000 normal cubic meters per hour (950 tons per day) of high-purity oxygen, nitrogen, and argon.

The oxygen, nitrogen and argon will be used for steel production at the Yawata works. Part of the argon product will also be used in a Nippon Steel subsidiary company for electronics manufacturing. The contract marks the first time a US industrial gas company has supplied cryogenic air separation equipment to a major third-party user of industrial gases in Japan.

Interleukin-2 Patent

Interleukin-2 Inc. says the European Patent Office has approved its patent covering a proprietary process for the manufacture of Interleukin-2. According to the company, the European patent covers Interleukin-2's technology in the UK, France, West Germany, Switzerland, Austria, Italy, Sweden, Holland and Liechtenstein.

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SOLVENT RECLAMATION: The recycling of chemicals is a growing business in the chemical industry, whether or not the government acts to encourage it by establishing tighter regulations.

Dinoseb Risk Seen Threat By US Agency

Environmental Protection Agency is warning that exposure of pregnant women to the pesticide dinoseb during its application in the field may pose a risk of birth defects to their unborn children. The agency adds that dietary exposure to the chemical is not of concern.

EPA says there are 80 registrants of dinoseb, both US and foreign, including Unifrac Chemical Company, Vertac Chemical Corporation, Hoechst A.G., Baird and McGuire, S.H. Marks Company Nitrogen Import, Universal Crop Protection Ltd., S.N.P.E., and Cominental Chimie Fararar.

The product, which is primarily a contact herbicide used to control broadleaf weeds, is sold under a variety of trade names, including "DNBP," "DINOSBP," "Dinitro," "Cal-don," "Nitropon C," and "Unicrop DNBP."

"Today's announcement is primarily aimed at making sure that the agricultural community in particular understands the health risks associated with the exposure of women to dinoseb. EPA will be taking appropriate action," said EPA.

Continued on Page 17

Oxy Completes Its Diamond Buy For \$850 Million

Occidental Petroleum Corporation announced last week that it has completed the acquisition of the Diamond Shamrock Chemicals Company. A spokesman for Oxy says the purchase price came to \$850 million, which includes \$110 million in assumed debt.

The purchase covers Diamond's Industrial Chemicals Division, Soda Products Division, Process Chemicals Division and Cogeneration facilities. The combination catapults Oxy into market leadership in the postassium hydroxide business, a position already held by Diamond Shamrock.

Occidental had formed a partnership with the financial company Drexel Burnham Lambert Inc. in May to buy Shamrock's chemical assets. However, during negotiations this summer the deal was restructured so that Oxy became the sole buyer of the unit. According to an Occidental spokesman, the new arrangement will make the purchase "more efficient" for Oxy. He did not elaborate, although he did add that Drexel will remain as financial advisor to the deal.

Oxy says it will finance the purchase by obtaining short term financing for the \$740 million cash portion of the purchase price, with long term project financing for the balance. Occidental reiterated that it may sell "certain assets" of Diamond Shamrock Chemicals "if they do not fit Occidental's strategy for its chemical operations."

Toxic Waste Problem: Recycling Is Seen As Only Way to Go

The US will not escape the "grim treadmill of disposal and cleanup" of toxic waste until it expands efforts to recycle hazardous substances, environmentalists said last week.

Twenty states have begun or are planning efforts to recycle a variety of hazardous materials to reduce the amount of toxic waste generated by their industries, the Environmental Defense Fund said in a report.

"The leadership in this area is coming from the states," said David Roe, an author of the study. "The Federal government is far behind. It's not good enough just to stay on the grim treadmill of disposal and cleanup, and make no effort to slow it down."

As an example, Mr. Roe cited California, where 92 percent of all used dry cleaning fluids are now recycled by new businesses formed specifically for that purpose.

He suggested similar efforts would be successful for other products and in other states. "There's no reason why that experience can't be replicated with paint shops and auto body shops," Mr. Roe said.

Federal programs, including superfund toxic waste cleanup operations are necessary, but not adequate to solve the problem, said Linda Greer, a scientist with EDF.

She said Federal law requires companies to reduce their output of hazardous waste,

but efforts to enforce those requirements have been weak.

The EDF report on state recycling activities complements a January report by another environmental group, Inform, which found that few chemical companies were changing plant processes and equipment to reduce the generation of waste, but those that did often found unexpected financial benefits.

The Inform report, said Mr. Roe, was "ahead of anything the Federal government ever did." He added that while there is no consensus among experts as to what the Federal role should be, there is "an enormous role for information gathering."

US industries generate more than 290 million tons of hazardous waste yearly, according to a 1981 survey by Environmental Protection Agency.

Amendments passed by Congress in 1984 to the Resource Conservation and Recovery Act are gradually tightening requirements, bringing more small companies under it and making it much more difficult to use landfills to dispose of hazardous waste.

The RCRA amendments were intended to promote permanent hazardous waste treatment technologies such as resource recovery and recycling, and to reduce the amount of hazardous waste being generated.

Borg-Warner Markets Alloy

Borg-Warner Chemicals Inc. has introduced its first commercial grade of ABS/nylon polymer alloy, "Elemid" RMI, which will compete directly with Monsanto's "Triax" line. Borg-Warner says the alloy is based on new patented technology that has been under development for the past five years, and is designed for use in the automotive, electronics, agricultural and industrial appliance markets.

At its annual "Thermoplastics Update" in New York City last week, the firm also announced that it would start marketing a new automotive grade of "Prevex" polymer, as well as six new blow-molding "Cyclocac" and "Prevex" polymer products.

The new alloy is said to combine the best of both nylon and ABS synergistically, displaying nylon's outstanding

chemical resistance without its high mold shrinkage.

Borg-Warner claims that its excellent flow characteristics will make the alloy very attractive for molding applications where flow and surface requirements are crucial, such as large structural parts.

The company's new automotive product, "Prevex" W20, a high flow, high-impact, heat-resistant material, should find applications in automotive interior trim parts and instrument panel components. It joins Borg-Warner's automotive polymer line, which includes "Prevex" W30, W40, W50 and W70, and is listed at \$1.14 per pound, truckload (natural).

The firm's new blow-molding products will expand the number of blow-molding grades of "Cyclocac" ABS from one to three, and mark "Prevex" debut in the blow-molding market segment.

Pfizer Biotechnology Venture Is Financed at \$4.5 to \$7 Million

Pfizer said last week that it signed a three-year \$4.5 million to \$7 million agreement with T Cell Sciences Inc. for the development of therapeutic products to treat rheumatoid arthritis and Type 1 diabetes — two autoimmune disorders.

The funds to be provided by Pfizer to the Cambridge, Mass., biotechnology company will support product research and development based on T Cell's antigen receptor technology.

Pfizer will receive worldwide exclusive rights to therapeutic products resulting from this work. T Cell Sciences will receive royalties on sales of these products and will retain exclusive rights to all diagnostic applications resulting from the collaboration.

"This collaboration marks a major step for T Cell Sciences, in that it supplies the financial commitment necessary for us to apply our technology to the promising area of immunoregulatory therapy," says Stephen D. Chubb, president of that company.

T Cell Sciences is recognized for its proprietary and innovative science in the area of

the T cell antigen receptor and its correlation with disease," says Barry Bloom, president of central research for Pfizer. "Given the recent discoveries in this area, we are highly enthusiastic and optimistic about its potential."

T cells circulate through the body and bear hypersensitive receptors on their surfaces. These receptors detect foreign substances (antigens) in the body and act as early warning signals for the immune system; the body's defense against disease and injury.

Recent discoveries about T cell antigen receptors and their genetic makeup provided new scientific basis for using specific receptor structures in detecting and treating hereditary and autoimmune diseases.

An estimated 7 million American adults suffer from rheumatoid arthritis and an estimated 1 million from Type 1 diabetes, two of the most virulent of the autoimmune diseases.

T Cell Sciences, an emerging health care company, completed a public offering of its stock and warrants last May.

Fiber Firms Seek Relief On Hill Again

The Fiber, Fabric & Apparel Coalition for Trade (FFACT) says it will continue to push for legislative import relief in Congress next year.

John N. Gregg, chairman of Avtex Fibers Inc. and the Man-Made Fiber Producers Association, has been re-elected chairman of the 15-member industry-labor lobbying group. Dewey Trogdon, current president of the American Textile Manufacturers Institute, has been re-elected FFACT vice-president.

"It is clear that the Reagan Administration is going to do nothing, that the import problem is not going away, and that a legislative solution is the only answer," says Mr. Gregg.

Congress passed a bill to establish import quotas on textiles and apparel, but the measure was vetoed by President Reagan last December. An attempt to override the veto failed in the House by eight votes last month.

Textile and apparel imports for July hit the highest level ever recorded for any month in history, the American Textile Manufacturers Institute reported today.

In figures released by the US Department of Commerce, July imports of textiles and apparel reached a record-breaking 1.256 billion square yards, a 29 percent increase over July 1985.

Textile and apparel imports for January-July set another year-to-date record of 7.6 billion square yards. This is a 23 percent increase over January-July 1985.

During the first seven months of the year, the trade deficit for textiles and apparel reached \$11.96 billion a 17 percent increase over the same time last year.

If the trend continues, the textile and apparel trade deficit for 1986 will reach \$20.5 billion, \$2.3 billion over last year's record-breaking trade deficit of \$18.2 billion.

Halcon Sold To Denka Chemical By Tex. Eastern

Texas Eastern Corporation and Denka Chemical Corporation have signed a letter of intent for Denka Chemical to acquire the assets at the Halcon SD Group at Little Ferry, New Jersey in a cash transaction of undisclosed value.

The assets at Little Ferry, New Jersey include ethylene oxide and maleic anhydride catalyst manufacturing facilities and SD process licensing and engineering businesses. The transaction should be closed in about four months.

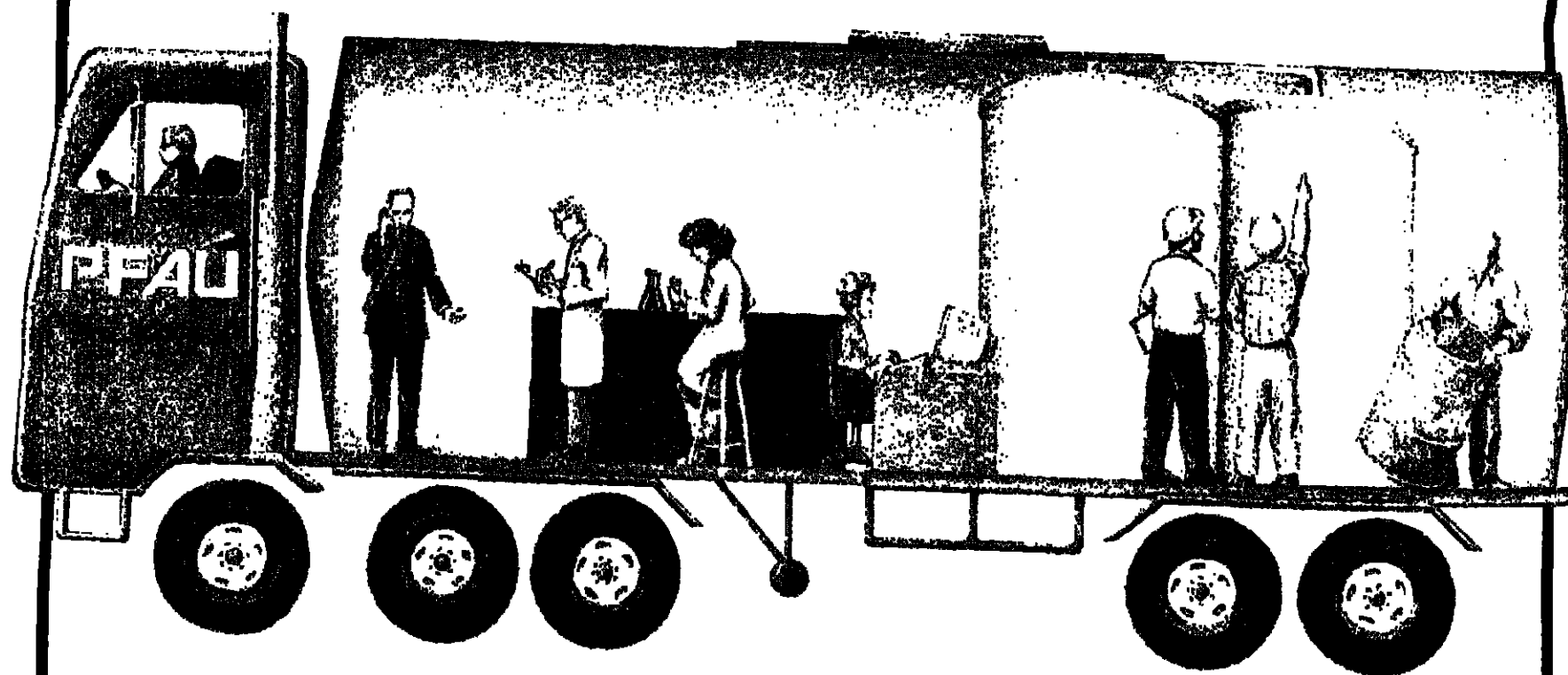
Texas Eastern will retain ownership of the Halcon SD subsidiary, Scientific Design Company Limited in London, which provides project management and technical consulting services worldwide.

The transaction is consistent with Texas Eastern's plans to concentrate on its core businesses. Marvin Z. Woskow, president, Denka Chemical Corporation, said, "The Little Ferry operations will fit well with Denka's existing businesses and Denka will benefit from blending the broad-based portfolio of Halcon SD technologies into Denka's current maleic anhydride licensing activities."

Texas Eastern Corporation is an international diversified energy company based in Houston, Texas. Its pipelines transport natural gas to the Northeast and petroleum products to the East Coast and Midwest. The company explores for and produces oil and gas, with major interests in the North Sea. Texas Eastern operates a crude oil refinery in Texas, markets various petroleum products at wholesale and is one of the largest marketers of liquefied petroleum gas in the world.

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Fertilizer and Art

Armand Hammer, chairman of Occidental Petroleum Corporation, used the opening of an art exhibition in the USSR last week as an occasion to plug his fertilizer dealings with the Soviets.

Explaining why he chose Odessa as the latest site for his traveling exhibition, "The Armand Hammer Collection: Five Centuries of Masterpieces," the Oxy chairman noted that his father had been born nearby more than 100 years ago and that Odessa is also the center of Occidental's fertilizer business with the Soviet Union.

Under a 30-year arrangement, Oxy supplies the Soviets with superphosphoric acid in return for ammonia, urea and potash. The relationship is now in its eighth year.

"It has stood the test of time," Dr. Hammer said last week at the opening of the exhibition, referring to his fertilizer deal with the Soviet Union, not the art. "The

project continues to run smoothly, to the mutual satisfaction of both sides."

It hasn't always been so. The Carter Administration banned the sale of US superphosphoric acid to the Soviet Union in early 1980, following the Russian invasion of Afghanistan. The ban was lifted shortly after the Reagan Administration took office.

The Odessa art exhibition, meanwhile, is the fourth such exhibit Dr. Hammer has opened in the Soviet Union since the signing of a US-Soviet art exchange last December.

The Hammer collection was last shown in Odessa 13 years ago. The collection currently includes 127 works, including 26 works not previously shown in Odessa. One of the more recent additions to the collection is Rembrandt's "Juno."

The collection was shown earlier this year in Moscow, Leningrad and Novosibirsk. It travels next to Kiev.

Membrane Gas Separators Introduced by Monsanto Unit

Advanced-generation membrane gas separators that are 200 percent to 400 percent more efficient than current separators have been developed by Permea Inc., the company said last week. This development was based on the invention by Permea scientists of a method to alter the structure of a broad range of membranes.

"For the first time, gas separating membranes can be tailor-made to give the permeabilities needed to separate any given gas from others," says Raghu Narayan, Permea's director of technology. "No longer do the inherent characteristics of the polymer dominate in the determination of a membrane's permeation rate and selectivity."

"With this new capability, we have used commercially available polymers to make second-generation membranes that are two to four times more efficient than any gas-separating membrane now available," he said.

Dr. Narayan said that the technological breakthrough resulted from "a ninety-degree departure" from the industry's usual approach to membrane research and development.

Membrane research has tended to focus on the molecular structures of specific polymers as the way to improve efficiencies and

separation qualities. "According to this approach, whoever found the best polymer had the best membrane," he said. "We at Permea followed that course in the past, especially with brominated polyphenylene oxide, which we found promising."

At the beginning of this year, Permea researchers changed course. "Instead of continuing to pursue specific polymers, our researchers looked for and discovered a means of altering the structure and chemical characteristics of asymmetric membranes generally," Dr. Narayan said.

"You start with polymers with demonstrated utility for separations," he said, "but the revolution is in influencing the morphology of the membrane by altering the formulation from which it is made."

According to Dr. Narayan, this discovery by Permea's scientists means that the inherent properties of a specific polymer, while important, count for less than the way the membrane is formed. "We can now make vastly improved membranes using well-known polymers. We don't have to resort to the more exotic ones."

As a result of this development, a single polymer can be made into different membranes with major variations in performance. "It's like graphite and diamonds. Both

Continued on Page 18

Combustion Engineering Sets Environmental Service Division

Combustion Engineering, Inc., the large Stamford, Conn.-based construction engineering and consulting firm, says it is branching into the potentially lucrative environmental services business. C-E says it has formed a new operation, called Environmental Systems and Services, to provide environmental consulting services, hazardous site cleanup, "and systems necessary to address hazardous waste issues in public and private sectors."

"Concern for the environment is clearly a national imperative. In light of emerging legislation and public awareness, we anticipate a substantial growth business in providing solutions to country's environmental problems," says Dudley C. Mecum, president of C-E's Urban Systems and Services Group. The company estimates that environmental services spending will grow from \$4 billion per year to \$7 billion annually by 1990.

C-E says it will apply its knowledge of process engineering, construction, waste incineration technology, and environmental monitoring and analysis to the new venture. Its

first project is the design and construction of a 26,000-ton-per-year offsite commercial hazardous waste incineration facility in Southern California. C-E says the plant will be able to handle about 33 percent of the burnable hazardous waste generated in Los Angeles County. The company says it may acquire other businesses as a way of expanding its environmental services business.

The Environmental Systems and Services group will be run by R. Nim Evtat, who previously was vice president of corporate marketing at Combustion Engineering. The new business unit will operate within C-E's Urban Systems and Services Group. In August, Combustion Engineering set up the Operations and Maintenance Service Group, another unit of Urban Systems and Services. This unit will serve the worldwide market for the operation and maintenance of government and industrial facilities.

Resource Recovery Systems, another unit in the group, was recently awarded over \$600 million in contracts to provide waste-to-energy plants. Lummus Group, C-E's engineering and project management services unit, also operates within the Urban Systems and Services Group.

Phosphate to Recover Slowly Over 5 Years

While phosphate fertilizer producers are enduring lackluster demand and less than break-even prices, analysts in the industry are predicting a slow recovery over the next five years.

For instance, Kenneth Nyiri, manager of market research at Texasgulf Chemicals Company, feels that by 1990, US producers will again reach the production peaks achieved in the early 1980's.

Mr. Nyiri says that Texasgulf bases its projections on the bottom line of world population growth and the corresponding increases in world grain consumption.

He says that by 1990, the US share of the world phosphate export market will probably drop to about 42 percent, from 50 percent last year and 47 percent this year.

However, in that same period he sees total world trade in phosphates increasing, to about 12 million tons, on a P₂O₅ basis, from a 1986 level of 9.2 million tons.

Consequently, Mr. Nyiri feels that by 1990, total US exports should increase to approximately 5 million tons, P₂O₅ basis, an increase of about 700,000 tons from the 1986 level.

Mr. Nyiri also foresees an increase in the domestic sector, but one not quite as strong as on the export side. He feels it will not be until the mid-1990's that domestic consumption reaches its former peaks.

Mr. Nyiri emphasizes, though, that both these increases are coming from a base year that is far from brilliant. This year's total

phosphate fertilizer shipments are down almost 7 percent from 1986 levels.

Other analysts seem to agree with the Texasgulf view.

Continued on Page 31



PHOSPHATE TERMINAL: Product waiting for shipment at Faouline warehouse, owned by Agricola Chemical. Inventories are said to be quite low now.

Carbide Sued by India Gov't For Unspecified Compensation

The government of India filed suit in a Bhopal court against Union Carbide Corp. Friday, claiming the US firm bears primary responsibility for the leak of methyl isocyanate that killed more than 2,000 people.

The lawsuit seeks unspecified compensatory and punitive damages for the December 3, 1984 toxic gas leak from a Carbide pesticide plant in Bhopal. At least 200,000 people were injured by the chemical.

"The massive escape of the lethal gas occurred as the result of unreasonable and highly dangerous and defective plant conditions," said the suit, filed in Bhopal by the ministry of chemicals and petrochemicals.

The government is the sole legal representative of the people affected by the incident under Indian law.

The government said the magnitude of the disaster is so great that the exact amount of

damages and injuries suffered by the people has not yet been determined.

India rejected Union Carbide's offer of a \$350 million out-of-court settlement as totally inadequate.

Union Carbide has alleged sabotage by disgruntled workers and said water deliberately was introduced in the gas tank, setting off a reaction and causing the explosion and leak.

The Indian government and plant workers have denied the allegations.

The government filed its suit after US District Court Judge John Keenan ruled in New York on May 12 that the case must be tried in India. India wanted to try the case in the US, which generally grants much higher compensation than India.

The suit contends the Union Carbide plant lacked adequate safety measures, had inherent design flaws and was improperly maintained.

Radioactive Chemicals Slated for US Review

Environmental Protection Agency says it plans to expand its regulations to control radioactive chemicals and decay products, such as radionuclides, in public water supplies.

The announcement, contained in an Advance Notice of Proposed Rulemaking, requests public comment on regulations being considered under the Safe Drinking Water Act for radium-226, radium-228, natural uranium, radon, and gross alpha, gross beta and photon emitters. All are known or probable human carcinogens. In addition, uranium is chemically toxic to the kidneys.

"We intend to propose new regulations on these radioactive chemicals and decay products as soon as next summer," said Lawrence J. Jensen, EPA Assistant Administrator for Water.

"Radon appears to be one of the largest health threats in water supplies," Jensen said, "and treatment methods to lower concentrations well below any anticipated regulatory limit are readily available."

Radionuclides are radioactive decay products which can be naturally occurring, con-

ing from uranium or thorium, or can be man-made, as a result of fission. Of approximately 2000 radionuclides, only a few present a threat to human health at the levels found in public water supplies.

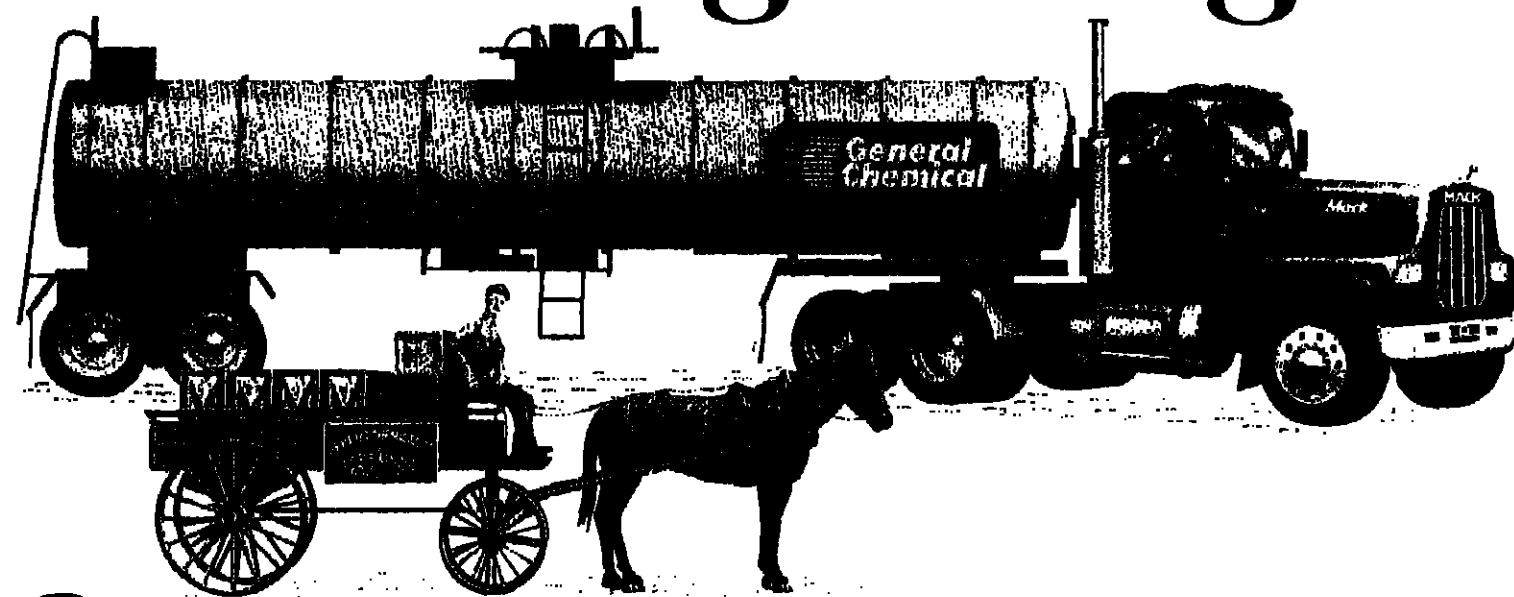
These will be the first regulations for radon and uranium in public water supplies. The agency intends to reexamine the interim standards it established in 1976 for radium, gross alpha, gross beta and photon emitters. EPA's future rules under the Safe Drinking Water Act would establish National Primary Drinking Water Regulations for radionuclides. These rules would apply to the 80,000 public drinking water systems in the United States.

EPA's surveys and studies indicate that only the two isotopes of radium, uranium, radon, and to a much lesser extent a small number of man-made radionuclides, have been found in detectable levels in drinking water. They are seldom found in high concentrations together.

With the exception of uranium, radionuclide levels are found to be quite low in surface water systems but higher in groundwater.

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News Capsule

PPG, GE Complete Deal

PPG Industries and General Electric Company have completed the formation of their previously-announced joint venture, Azdel Inc., which manufactures and markets reinforced thermoplastic composite sheet. The new company is based in Shelby, N.C. Agreement to form the venture was announced in July.

Strong Point Buys

Strong Point Inc., Irvine, Calif., has acquired Tri Coast Engineering, Corona, Calif., marking Strong Point's entrance into the hazardous waste cleanup business. Strong Point previously announced the formation of Lumberyard Development Company and a \$3.5 million acquisition of the Lumberyard Village Shopping Center.

Nitric Acid Tanks

Sea Containers Ltd., Bermuda, has delivered the first seven of 18 nitric acid tank containers to Bougainville Copper Ltd., Sydney, Australia. The IMO type tanks have been designed by Sea Containers for high strength nitric acid. Bougainville Copper operates one of the world's largest copper, gold and silver mines in Papua New Guinea.

ICI Buys Operation

ICI Australia has acquired a US zirconia operation in a move designed to further develop world markets for its range of advanced ceramic powders and chemicals. ICI has purchased the zirconia operation of Ferro Corporation, based in Bow, N.H. The US zirconia business will operate as a wholly-owned subsidiary of ICI Australia under the name, Z-Tech Corporation.

Matlack Opens Terminal

Matlack Inc., the bulk trucking company, has opened a new full-service terminal in Sulphur, La., to serve chemical and petrochemical producers in and around the Lake Charles area. The terminal will account for about \$5 million in annual revenues. It includes three full-service cleaning bays with modern cleaning and waste treatment equipment, as well as two full maintenance bays.

Plant Strain Cleared

A new insect-resistant, genetically engineered tobacco plant developed jointly by Rohm and Haas Company and Plant Genetic Systems of Belgium has been found not to be a plant pest, according to US Department of Agriculture. USDA is required to prevent the introduction and dissemination of plant pests in the US.

Apache Changes Name

Apache Chemicals Inc., a manufacturer of liquid diffusion systems, will operate under the name Olin Hunt Specialty Products Inc. The company was acquired by Olin Corporation two years ago and has operated since then as a division of Olin Hunt Specialty Products. The company's product line will be marketed through the Olin Hunt Microelectronics Business Group.



HIMONT FACILITY: This joint venture of Montedison and Hercules has been performing well, according to the Italian company, making a significant contribution to current earnings.

Shamrock Agrees to Buy Retail Fuel Firm

Diamond Shamrock Refining & Marketing Company, subsidiary of Diamond Shamrock Corporation, has agreed to acquire Royal Petroleum Inc., a privately owned, Denver-based retail motor fuel marketer. Terms have not been disclosed.

Royal Petroleum owns and operates 42 retail motor fuel outlets in Northern Colorado, including 25 outlets in the Denver metropolitan area.

Diamond Shamrock says the acquisition is part of its plan to double direct retail motor fuel sales volume during the next five years. The company currently owns and operates roughly 500 retail gasoline/convenience store outlets, including 440 branded outlets in Texas.

The company also markets Diamond Shamrock-brand motor fuels through 1,500 independently owned jobber outlets in 17 Southwestern and Rocky Mountain states.

Acquisition of Royal Petroleum is expected to be completed this month.

PPG Industries Sees Big Growth In Biochemicals

PPG Industries is preparing for significant growth in biochemicals by doubling the manpower of its reorganized sales team and adding a new marketing manager.

"We'll add 18 sales representatives this year; seven already are on board and the rest will join us before year's end," says Thomas M. Von Lehman, biochemicals general manager. "These key people are being strategically positioned to increase our service capabilities in major corn- and soybean-growing areas east of the Rockies."

Four sales districts — West, Midwest, Mideast and Atlantic — have been created in place of the previous two regions. In line with the sales team expansion, this reorganization provides a clearer focus on key markets for "Genate" and "Genep" herbicides, and prepares us for the planned 1987 growing season launch of new "Cobra" soybean-field herbicide," Mr. Von Lehman said.

Pittsburgh-based PPG's current line of crop-protection chemicals includes "Genate Plus" herbicide for cornfield weed control, "Genep" herbicide for weed control in fruits,

Montedison Earnings At \$162 MM in Half

Montedison Group, the diversified Italian company, raised its first-half consolidated income before minority interests to \$162 million from only \$11.4 million in the same period a year ago. The Himont joint polypropylene venture with Hercules Incorporated and petrochemicals and plastics were among the star performers.

Montedison's results are now solidly in the black after years of losses and a token profit in the 1985 calendar year. Montedison SpA, the parent company based in Milan, Italy, had earnings of \$80 million, as compared with \$2 million a year ago. (Results in lire for both years have been converted at the current exchange rate).

The strong showing was due mainly to better operating performance in most of Montedison's activities, but greater efficiency and lower financing costs also contributed to the final results.

The company's total revenues declined to \$459 billion lire, down 9.5 percent from a year ago, reflecting the decline in prices for crude oil and prices of the petrochemicals closest to the barrel of oil.

In petrochemicals and plastics, gross income increased markedly, despite decreased revenues, and results in the Himont joint ven-

ture also improved considerably, Montedison stated. Specialty and high-performance materials continued to experience a favorable trend in both earnings and revenues, particularly in fluoropolymers, Montedison noted. Earnings were also strong in fibers. Compco, a jointly owned American subsidiary, is in the process of rationalizing its production and diversifying its activities, Montedison disclosed.

In health care, sales volume increased with the introduction of new products, but gross operating income decreased because export revenues were adversely affected by the declining value of the dollar, which reduced income in lire. Erbamont NV, the big pharmaceutical subsidiary, raised its quarterly dividend to 10 cents per share from 7 1/2 cents.

In the services area, the subsidiaries of Iniziativa Me.T.A. achieved positive results, up from a year ago, but the mass retailing sector encountered difficulties as a result of the restructuring process now under way, Montedison says. A labor problem in this area, however, has been resolved.

Montedison's functional chemicals showed positive operating results, despite reduced revenues in some areas, it was noted.

The company's fixed investments rose to 303 billion lire from 245 billion in the first half a year ago.

Chemical to Detect Arson

A technique developed at the Commerce Department's National Bureau of Standards (NBS) shows promise in detecting arson by chemically analyzing soot samples for by-products of the materials used to start the fires.

In experiments conducted at the bureau's Gaithersburg, Md., facility, NBS researchers have found that the accelerants used by many arsonists to start fires — hydrocarbon-based liquids such as gasoline, kerosene, and paint thinner — produce specific combustion "daughter products" that become part of the soot.

Known as polycyclic aromatic hydrocarbons (PAHs), these products can be removed by solvent extraction from sooty deposits sampled at the scene of a fire. NBS scientists use gas chromatography

(GC) to detect the presence of PAHs. The analytical test is "a very simple one that could be easily used as a forensic device," says Stephen N. Chesler, an NBS chemist and chief scientist for the project. He adds, however, that the method is experimental at this point and needs further investigation.

Mr. Chesler's research began several years ago at the urging of the Law Enforcement Standards Laboratory, a branch of NBS. The initial goal was simply to analyze soot for the presence of gasoline and other accelerants. Early tests using the GC technique were unsuccessful.

The next step was to use the same accelerants to burn household materials such as

Continued on Page 23

Baxter Travenol Completes The Sale of Its Flint Division

Baxter Travenol Laboratories Inc. last week completed the sale of its Flint prescription drug business to Boots America Inc., a subsidiary of Boots Company of the UK, for \$555 million. A purchase agreement was announced last month (CMR 8/11/86, pg. 3).

Under the terms of the agreement, Baxter Travenol could receive additional payments of up to \$46 million, depending on the future sales performance of Flint's chymopapain products, "Discease" and "Chymodiatin." According to Boots, neither product is doing very well at the moment.

After-tax proceeds of approximately \$400 million will be used by Baxter Travenol to reduce the debt incurred in its \$3.7 billion acquisition last year of American Hospital Supply Corporation.

Proceeds from the Flint sale will eliminate Baxter Travenol's need to continue refinancing floating-rate debt into fixed-rate debt, as originally planned, the company says. As a result, accumulated, deferred interest-rate hedging costs of approximately \$65 million will be reflected as an extraordinary expense in the company's third quarter financial results. The company says it will report approximately \$238 million of non-recurring net income in its third quarter results.

Baxter Travenol's sale of its Flint business is the last in a series of divestments that virtually removes the company from phar-

maceuticals. Earlier this summer, Baxter Travenol agreed to sell its American Critical Care unit to E.L. du Pont de Nemours & Co. for \$425 million. The sale is expected to be completed by the end of this month.

Baxter Travenol completed the sale of its American Medical Optics unit in May to SmithKline Beckman Corporation for \$166 million.

The Flint unit recorded pre-tax profits of \$33.1 million last year on sales of \$53.7 million. Boots had been looking for a US pharmaceutical firm for a number of years and was willing to pay a steep premium for Flint in order to get a better foothold in the lucrative US market.

Boots says it will immediately combine the sales forces of its existing US subsidiary, Boots Pharmaceuticals Inc., with that of Flint, and eventually merge the two operations entirely into one entity.

Flint's major product is "Synthroid," a drug used to treat thyroid deficiencies. It accounts for about 80 percent of Flint's total sales.

Boots is best known for its "Motrin" drug for the treatment of rheumatism. The company has a heart drug under development in the US and Europe, which it hopes to market here by 1990.

Baxter Travenol will now focus on medical and surgical manufacturing and distribution, information systems and home care clinics and labs.

Continued on Page 16



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OILS, FATS & WAXES

Bean Oil Market Tightens Up As Crush Falls, Exports Rise

The soybean oil market is finding some relief at present from the oversupply situation that has been troubling it for most of the year. Most of the reduction in supplies is due to a combination of reduced crushing rates and an increase in export movement.

The US government has been buying large amounts of soybean oil in recent days to fuel active world trading. Last Wednesday the government purchased 18,000 metric tons of soy oil for donation to Pakistan. The donation comes under a Title II initiative of PL 480. The material involved, crude de-gummed soy oil in bulk, is due designated for September shipment.

Just days before this purchase, Bangladesh bought 13,000 metric tons of crude, de-gummed bulk soy oil. That authorization, under Title I of PL 480, was issued on August 29. Also issued a purchase authorization under Title I was the Dominican Republic. They are designated to buy 30,000 tons of oil in the next few months.

All of this comes amid reports from traders that soybean oil production is down for August, and will also be down in September. Production of the oil in July was 899 million pounds; in June it was 882 million pounds.

These figures are down from monthly production levels earlier in the year that were over 900 million and, in the case of March and January, over one thousand million pounds, according to Department of Agriculture figures.

An estimate based on preliminary figures from the Agriculture Department shows August production level to be 20 to 30 million pounds less than July's level. This bears out the belief by soy oil traders that this month and last month will show reductions in crush rates when final figures become available.

The market cannot be expected to maintain its current relative tightness, however. A rise in European demand for soybean meal has been helping to support the rate of crush. Following a seasonal cycle, the Europeans' demand for the meal can be expected to continue to climb throughout the Fall months, a source says.

Also, the US government is holding a large amount of soybeans under Commodity Credit Corporation ownership. These beans can be expected to be released sometime after the farm loan rate is fixed. The deadline for fixing the rate, currently set at \$4.77 per bushel of soybeans, is October 1.

After that date, the government may release the beans, stimulating the crush rate. Increasing this likelihood is the fact that

farmers are currently forfeiting their soybeans to the government, rather than paying back their loans in cash. This is due to the relatively low value that soy commands on the market today, sources say. When these beans are released, the oil market can be expected to do some softening.

In the meantime, though, the government-held beans are occupying valuable space.

PRICES TRENDLINES

WEEK ENDING SEPT. 5, 1986

CHANGES/UP

Cottonseed, 41% bulk, Memphis, \$2.50 per ton
Palm oil, NY, 35c. per lb.
Peanut, 50% bulk, BE, \$20 per ton
Soybean, 44% bulk, Decatur, \$4 per ton
Tallow, inedible, fancy, tanks, divd. NY, 1/4c. per lb.
Tallow, inedible, bleach, tanks, divd. NY, 1/4c. per lb.

CHANGES/DOWN

Grease, yellow maximum 10%, 1/4c. per lb.
Lard, loose, bulk tanks, Chicago divd., 2c. per lb.
Lined oil, Minneapolis, 1c. per lb.
Soybean oil, Decatur, 10c. per lb.

OILS, FATS INDEX

The Oils, Fats & Waxes Index reflects the prices of 11 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986 83.87
Aug. 29, 1986 83.06
Aug. 8, 1986 79.16
Sept. 6, 1985 85.62

Chemical Prices Start on Page 36

This will force farmers to sell their crop to the crushers as it is harvested, rather than withholding it to pressure the market upwards, sources say.

Pakistan has announced an import regulation program that will limit the amount of palm oil that its vegetable oil consumers may buy. If a Pakistani buyer fills more than 66 percent of his vegetable oil needs with palm oil, he will face stiff import taxes on that palm oil. This new regulation, it is hoped, will serve to assure a portion of the Pakistan market for US soybean oil, according to industry sources.

VEGETABLE OILS

COTTONSEED OIL — This oil is seeing little trading activity as prices continue to fall. Demand is generally poor, as competing oils keep cottonseed oil from making progress in the market, sources say.

It is expected that much of the new crop of cottonseed will be sold to feedstock producers, who generally offer better prices for the material than crushers do, says an industry source. Crush yields will remain uncertain for a while, since crushers generally buy the residual material once the feedstock buying is over. Nevertheless, it is expected that the crush volume in California will see a reduction this year as compared to last year, a source says.

LINSEED OIL — Harvesting that would have ordinarily begun by now is being delayed by heavy rains for at least another ten days to two weeks at best, sources say. Trading is being called quiet now as buyers wait for the new crop oil and accompanying lower prices.

The market "doesn't have a lot of zip to it," says one trader, who goes on to note that the heavy rains hitting the Dakotas and Canada are not only keeping pickers out of the fields, but are also having the effect of delaying the maturation of the flax.

PALM OIL — The latest round of changes on Malaysian crude palm oil export duties would seem to indicate that Malaysia will continue to flood the world refined palm oil market.

The crude palm oil duty was raised, fur-

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OILS, FATS & WAXES

their encouraging Malaysian producers to keep the crude material in the country and refine it for export. In keeping with this trend, the duty on refined oil was lowered 15.04 Malaysian dollars to \$53.82 per ton, equal to about \$21 in US currency.

Malaysian production continues to go through the roof, with palm oil stocks in that country expected to reach one million tons by January 1, 1987, according to industry sources.

Pakistan has imposed a heavy import duty on foreign refined palm oil. While Pakistan has raised the import tax on all vegetable oils to 3,000 rupees, it has raised the palm oil duty an additional 3,000 rupees on top of that. Buyers who can demonstrate that less than 65 percent of their oil needs are being filled by palm oil will receive a rebate of 3,000 rupees. The move comes as part of an effort to boost sales of Pakistan's domestic oils, mostly cottonseed oil.

In the US, spot trading has been stagnant, according to industry sources. Consumers have been taking advantage of low prices on palm oil by buying as far forward as 1988. Malaysian production, now at a seasonal peak, should insure continued low prices for the future, sources say.

SAFFLOWERSEED OIL — West Coast traders are seeing active buying and selling as the new crop oil begins to hit the market. Buyers who abstained from the market in July and August, allowing their stocks to dwindle, are the cause of a "fairly good rush," according to an industry source. This is resulting in "pretty heavy buying commitments" on the nearby positions of the new oil, he says.

The tight supply situation of the Summer months has not evaporated yet. The backlog of orders is preventing stocks from building at the moment. It is not expected that significant supplies will accumulate for another one or two months, a source says.

Traders in the Dakotas and Montana are hoping for a similar rush to occur in the next couple of weeks when their new crop oil will begin to enter the market.

LARD — Lard prices have gradually been working their way down over the past few weeks. Overproduction due to a "good hog kill" is keeping the market soft, according to an industry source.

FATTY ACIDS

TALL OIL — Tall oil fatty acid (TOFA) production in July was down compared to the output during June.

July's production on 2 percent and over rosin content fatty acids was 8,500 tons, down

19.7 percent from June's level of 10,900 tons, according to Pulp Chemicals Association figures.

For the less than 2 percent rosin content TOFA, July production was 7,900 tons, representing a 10.3 percent fall from the 8,900 ton output of the month before.

Chemical Blaze Forces Evacuation

Approximately 1,000 residents of Elkhart County, Ind., were evacuated for several hours last week after a fire broke out there in a chemical warehouse containing drums of acetone, dichloromethane and other materials. Preliminary tests indicated that smoke from the blaze did not pose a health threat.

Firefighters were advised by Chemtrec to let the fire burn out, because dousing the fire could contaminate the groundwater. Chemtrec is the information clearing house on hazardous materials formed by Chemical Manufacturers Association.

DMT Correction

The Chemical Profile of August 25, on page 50, incorrectly listed the location of an Eastman Chemical Products Inc. dimethyl terephthalate plant as Wilmington, N.C. The correct location is Kingsport, Tenn.

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AROMATIC ORGANICS

TDI Market Turns Upward; Makers Say Pricing Steadies

Producers of toluene di-isocyanate (TDI) say that strong export interest, fair domestic demand, and rising feedstock costs have stabilized the market this quarter.

An industrywide price increase during the first half of the year was only partially successful. During the past two months, however, producers are in agreement that discount levels off the list level of \$1.01 per pound have held steady.

Weakness in feedstock toluene pricing was seen as a contributing factor to producers' difficulty in raising prices earlier in the year. But since July 1, toluene has turned around from a \$1.01 to \$1.04 per gallon price range to a 70c to 72c per gallon level.

While most TDI producers say that an effort will likely be made to raise prices for the first quarter of next year should toluene pricing stay firm, one producer says that because such a small amount of this year's price increase actually went through, "the industry really needs a (first quarter of 1987) price increase almost irrespective of what happens with toluene." It is estimated that toluene accounts for about 20 percent of production costs.

Producers say that market conditions, tighter than early in the year, could well support a price increase in 1987.

"Supply and demand are precariously near balance," says one producer, and another comments that "we are (producing) full out, and, from what we gather, the competition is also." Two competitors estimate an industry-wide operating rate of 93 percent for the year.

STRONG EXPORT BUSINESS

Export business is said to be playing a significant role in the market. Through July, exports were running about 500,000 pounds, or 4.5 percent, higher than the 1985 average. The Middle East and Oceania are said to be showing strong demand for US material. Brazil, which in the past has shipped MDI to the US, has become a net buyer of US product as its production has been unable to keep up with strong growth in demand there.

Producers point out that export prices have been moving up steadily in recent months and presently are virtually equal to domestic pricing. With the US dollar expected to continue weakening, this trend should continue, producers say.

One TDI producer observes that the market has tightened up to such an extent that when he tried to buy material recently for resale to cover overseas commitments, he was unable to obtain it. Another producer says that, during a maintenance turnaround last month, he "went around trying to borrow some (product) and couldn't get any."

It is said that domestic demand from the furniture sector, a major end market, has picked up in recent months in a seasonal pattern of a three to six month lag behind

housing starts. Overall demand is said to have been fairly flat during the first half of the year, but the second-half pickup should lead to a 4 to 5 percent growth rate for the year, producers say.

Producers observe that an increase in the implementation of environmental controls at their facilities is a significant factor in the marketplace. "There is a lot of pollution control work that's expensive and also limiting the ability to produce at full capacity," says one producer; another comments that non-productive capital expenditures have been on the rise since environmental restraints have become more severe.

BHT — A producer of butylated hydroxy-toluene says that the market price has "shifted slightly upwards" during the third quarter. It is expected that total demand

PRICES TRENDLINES

WEEK ENDING SEPT. 5, 1986

CHANGES/UP

None

CHANGES/DOWN

None

AROMATICS INDEX

The Aromatic Organics index reflects the prices of 14 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986 167.84
Aug. 29, 1986 167.84
Aug. 8, 1986 167.84
Sept. 6, 1985 167.84

Chemical Prices Start on Page 38

from the plastics and rubber sectors during the second half of 1986 will show an improvement over that period last year.

However, long-term demand for BHT "will be flat, or decrease somewhat the next few years," the producer comments. The trend in the industry is said to be towards less volatile, higher molecular weight phenolic antioxidants and phosphites.

BTX — The firming trend in basic aromatics pricing "is still rolling right along," says a trader, as strength in crude oil pricing is felt in the market. In addition to "confidence in the OPEC agreement," adds another market participant, strong European octane demand is pushing toluene pricing upwards.

Spot benzene is quoted in a range of 80c to 81c per gallon, spot toluene is quoted between 70c and 72c per gallon, and spot xylene is quoted at 72c to 75c per gallon. The benzene and toluene prices are both 4c per gallon higher than a week ago; xylene pricing has been holding fairly steady.

The US toluene market would be snug even without European interest, observers note.

AROMATIC ORGANIC OUTPUT

US INTERNATIONAL TRADE COMMISSION NUMBERS POUNDS/GALLONS.

	2Q 1986	CUMULATIVE 1986	CUMULATIVE 1985
Aniline	163,416	405,722	369,177
Benzene	319,189	873,555	889,702
Styrene	207,821	411,499	417,083
Creosote oil, dist. as such (100% basic)	21,365	40,569	37,820
Creosote acid, mixed creosole	901,885	1,751,920	1,614,730
Camphene	84,202	1,118,475	889,385
Cyclohexane	2,281,909	4,377,229	4,300,401
Ethylbenzene	67,191	175,328	161,225
Methyl anhydride	713,124	1,427,096	1,686,589
Phthalic anhydride	212,035	429,112	431,321
Styrene monomer	1,870,449	3,808,979	3,751,323
Terephthalic acid, dimethyl ester	1,624,350	3,888,164	3,447,889
Toluene, all grades	178,722	388,918	389,827
Toluene 2,4- and 2,6-dimethoxyaniline	189,013	325,632	322,440
c-Xylene	140,357	350,502	349,469
p-Xylene	1,261,821	2,470,412	2,299,749

(1) Party estimated.
(2) Revised.
(3) Totals may not equal the sum of the monthly figures due to fiscal year revision.



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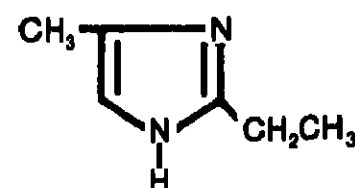
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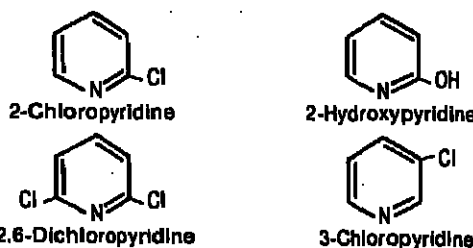
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AROMATICS

However, lead phasedown in Europe has created "a vacuum sucking in octane" from the US, South America, and the Far East, one industry source comments.

With this strong toluene demand, the differential between benzene and toluene pricing remains narrow. As a result, hydroalkylation is not economical for those who otherwise buy benzene on the merchant market.

Operational difficulties at Standard Oil's Alliance, La. facility have contributed to the snug market conditions, sources note. Basic aromatics production was resumed last week, a company spokesman says, but "we would like to have had it (running) two months ago." Mechanical problems with both the refinery and the aromatics unit are cited.

It is widely believed that Exxon Chemical Americans and Shell Chemical, both currently posting an 80c. per gallon benzene contract level, will join Standard Oil's 85c. per gallon level at mid-month.

Standard Oil's decision to raise pricing to 85c. September 1 was based in part on a distaste for bimonthly price adjustments, says a company spokesman. "We have established a position," he says, and "have been getting pats on the back" from styrene producers who raised their prices 3c. per pound at the first of the month.

PARA-CRESOL — Biddle Sawyer Corporation, a distributor for Synthetic Chemicals Limited at the UK, says it is raising its price in bulk quantities to 95c. per pound, effective October 1. The change is attributed to increased manufacturing costs.

Another supplier who is studying the move says that prices have been at depressed levels for some time due to oversupply. BHT production, the main outlet for para-cresol, is expected to increase only slightly in the coming years if at all. Nonetheless, BHT pricing has been firm recently.

STYRENE — It was mistakenly reported last month (CMR, 8/25/86 pg. 13) that "Cos-Mar, Inc. will eliminate a 3-cent-per-pound temporary voluntary allowance off its 24 cent per pound posting." The price change was made by Cosden Oil & Chemical Company, a joint owner with Borg-Warner Chemicals, Inc. of Cosmar Company, a 50-50 facility devoted to manufacturing only. Cos-Mar, Inc. is the holding company. Borg-Warner increased its pricing by 3c. per pound across-the-board September 1.

**Burmah Buys
Adhesives Firm**

Burmah Specialty Chemicals, a Swindon, England division of The Burmah Oil plc., last week said it acquired Columbia Cement Company, a New York-based producer of adhesives, with sales approaching \$25 million.

Commenting on the purchase, Jonathan Fry, chief executive of Burmah Specialty Chemicals said, "Columbia is a market leader in the US, and provides an excellent base for further expansion in the growing American adhesives market."

"We are delighted to announce that Howard Maisel, the current president of Columbia Cement, will remain with us as head of Burmah Specialty Chemicals' Adhesives Division in the US, and the Americas. Mr. Maisel will play a key role in a worldwide expansion program for Burmah Adhesives."

BURMAH ADDS RESOURCES

Mr. Maisel, commenting on the purchase, said, "Our joining Burmah Specialty Chemicals will provide us additional resources to expand. We look forward to helping Burmah become a force in adhesives in the US and eventually in the global adhesives market place."

The purchase of Columbia Cement represents the first Burmah Specialty Chemicals adhesives acquisition in the US.

Other units of Burmah Specialty Chemicals with US operations include the Coatings Division and Water Management Division. Additional Burmah Specialty Chemicals US acquisitions completed within the last year include Yates Manufacturing, a producer of investment casting waxes; National Wax Company, which manufactures a wide variety of wax compounds; and Burmah Technical Services, formerly the water management operations of Clow Corporation.

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ALIPHATIC ORGANICS

**Propylene Market Seen Firming
As Feedstock Costs Advance**

Propylene makers, foiled in their attempts to raise prices in July and August, are seeking a 1-cent-per-pound gain in September and as much as 2 cents per pound in October. Chemical-grade propylene sold in August for 9 1/4 cents per pound.

The earlier price move was snuffed by falling feed values and large inventories, but producers see a different picture now.

Feed costs are on the way up, bolstered by the anticipated effect of OPEC's supply reduction agreement, and supplies are headed downward as refiners reduce their output from FCC crackers in line with the end of the driving season.

Also, scheduled olefin unit turnarounds for September and October are seen reducing the propylene stockpile and easing pressure for soft pricing.

So far, the results of the September move are mixed. Says one observer, "It depends who you talk to: the big buyers will wait for the smaller accounts to be settled and major settlements will come at the end of September."

One major participant in the propylene marketplace disagrees with this outlook and maintains that the price increase has fallen flat early in the month.

He reasons that although propylene prices have fallen dramatically during the year, propylene makers did not pass through all of the cost reduction to buyers. Producers are now seen holding some leeway in absorbing rising feed prices for the time being.

BIG PUSH IN OCTOBER

The outlook for September prices, among the most optimistic forecasters, is for a 1/4 cent-per-pound gain. But the feeling among marketers is that, regardless of September settlements, the "big push" will come in October when the industry is expected to be more adamant about reaching prices of 11 cents per pound for chemical-grade material.

The underpinnings of the October move are expected to come largely from increased feed prices. Gas oil prices have gained about 9 cents per gallon since early August, moving to 41 cents per gallon on the spot market last week.

Gas oil had been a minor part of the olefin feed slate. However, falling gas oil prices this year, on the heels of falling crude prices, have brought gas oil into greater prominence at the front end of steam crackers.

Now, with the rise in gas oil price, olefin makers are faced with a double blow. Higher output of coproduct butadiene has put a dent in gas oil economics as the C₄ material has seen nothing but steadily falling values this year. September contracts for butadiene are reported at 10 1/4 cents per pound, down from 11 1/4 cents in August.

Also, the large output of propylene from crackers using gas oil has put the onus of olefin profitability more on propylene.

The price of other feedstocks has declined since mid-year. But switching to the less expensive inputs is not immediately feasible, according to observers.

Ethane at 17 1/4 cents per gallon on the Gulf Coast spot market last week, down from 17 3/4 cents per gallon in early June, is not seen as a strong feed option right now.

With the decline in natural gas production,

PRICE HIGHLIGHTS

ALIPHATICS IN AUGUST

	AUG. (US \$)	JULY (US \$)
Butadiene.....lb.	12 1/4	13
Ethylene.....lb.	18 1/4	19 1/4
Ethylene Glycol.....lb.	16 1/4	17 1/4
Methanol.....gal.	28	30
Propylene.....lb.	9 1/4	9 3/4
Vinyl Chloride.....lb.	15	

due to heavy competition from oil products, ethane is in short supply for the near term.

Propane, at 23 1/4 cents per gallon last week, down from 26 cents per gallon in early June, may be favored by some companies right now.

"There should be more emphasis on propane until ethane production comes up," says one analyst. However, propane product streams are rich in propylene and would exacerbate the C₃ oversupply situation.

Whatever the economics of lighter feeds are now, crackers that can handle gas oil

PRICES TRENDLINES

WEEK ENDING SEPT. 5, 1986

CHANGES/UP

None

CHANGES/DOWN

None

ALIPHATICS INDEX

The Aliphatic Organics Index reflects the prices of 20 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986	222.80
Aug. 29, 1986	222.80
Aug. 8, 1986	222.80
Sept. 6, 1985	203.80

Chemical Prices Start on Page 38

have been the most profitable during the oil price slide. Now gas oil crackers are committed to depleting their stocks and an October price increase in propylene is seen as one of the more likely ways of maintaining profitability during this period.

Propylene makers, in addition, are not bashful about asking some of their customers for higher returns. Polypropylene, the largest single end use for the C₃ material, is seeing double-digit growth in exports and a number of domestic end uses.

Exports, this year through June, are up 30.7 percent over last year, reaching 516 million pounds, according to Society of the Plastics Industry. The group also reports that domestic film demand is up by 32 percent over last year, reaching 263 million pounds for the first six months of this year.

In total, domestic demand, including material for export, is up by 6.9 percent over last year, with the total requirement reaching 2.8 billion pounds in June.

According to one propylene producer, "all indications are for stronger pricing. Feeds are increasing and polypropylene is tight, with producers running all out."

Refinery propylene, which in the past has tipped the supply balance toward abundance, is now in a period of contraction. Output of refinery material is being reduced by about 10 percent from its driving season high, according to one producer. This should take some of the supply pressure off the chemical markets, says the source.

Also, refinery propylene values, have gained about 1 1/4 cents per pound during the latter part of the driving season in line with improved gasoline values. Current prices for refinery material are in the 8-cent-per-pound range.

Production of refinery material is down significantly this year compared to last. According to International Trade Commission, refinery propylene production reached 761 million pounds for the first six months of this year, compared to 978 million pounds for the same period last year.

Chemical- and polymer-grade production showed a large increase in the same period. In the first six months of this year, 7.6 billion pounds were produced compared to 6.4 billion pounds last year.

ACETIC ACID — Celanese Chemical Company, Inc. says that it will increase the market price of its acetic acid by 1 cent per

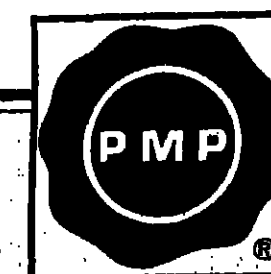
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ALIPHATICS

September and prices reached in August should remain firm through the season. In fact prices may see some gains as ethylene prices move up by 1c. per pound in September and 1c. to 2c. more in October as olefin makers are hoping.

BUTADIENE — Corpus Christi Petrochemical Company and El Paso Products company said last week that the Corpus Christi has acquired El Paso's 210-million-pound-per year butadiene facility in Corpus Christi, Tex. The purchase price has not been disclosed.

The agreement became effective on September 1. Last week it was also agreed that Corpus Christi will sell all of its butadiene output from the facility to Shell. According to a Corpus Christi spokesman "Shell will be the seller now instead of El Paso."

Corpus Christi has an olefins complex adjacent to the El Paso site and has been the principal supplier of raw materials to the facility. This acquisition, "gives us improved integration at our olefins cracker complex, says the spokesman. The company is also expecting to "reduce fixed costs" with the purchase.

Corpus Christi is a joint venture of ICI Americas Inc., Champlin Petroleum and Solvay America.

ETHYLENE GLYCOL — Prices during August and early September, for industrial/antifreeze grade ethylene glycol, f.o.b. Gulf Coast locations in bargeloads, reached 16c. to 16 1/4c. per pound. This is down by 1/4c. to 1c. per pound from July levels.

Softening values have been exacerbated by the reluctance of antifreeze retailers and distributors to commit themselves to product in August, the early part of the antifreeze buying season. "When prices are declining retail buyers don't stock up since there is a good chance that future costs will be lower," says one EG producer.

This all adds up to a late start for the antifreeze season with a probable crunch coming in late October or early November when consumer buying picks up. Suppliers report that sales have started to accelerate in

September and prices reached in August should remain firm through the season.

In fact prices may see some gains as ethylene prices move up by 1c. per pound in September and 1c. to 2c. more in October as olefin makers are hoping.

Production of ethylene glycol for the first six months of the year, according to US International Trade Commission, reached 2.3 billion pounds, a 5 percent increase over levels reached last year. Sources attribute the increase to a combination of fewer operating problems this year and increased demand in the relatively small, but fast growing, PET resin market. While PET resin for bottles command only about 10 percent of the US ethylene glycol end uses, its growth is pegged as high as 15 percent per year.

VINYL ACETATE MONOMER — Celanese Chemical Company says it will increase the worldwide market price of vinyl acetate monomer by 2 cents per pound for all shipments after October 1. Celanese would not comment on current market prices.

August prices for VAM, following some slippage since January, were reported between 28 to 30 cents per pound, delivered, by medium-sized accounts.

PPG Industries

Continued from Page 9

vegetables and ornamentals, "Sprout Nip" potato sprout inhibitor, and the older "Cham Hoe" and "Furloc" brand herbicides.

The company has applied for and is expecting Federal registration of "Cobra" post-emergence herbicide in time for the 1981 growing season. US soybean grower tests of "Cobra" herbicide have demonstrated a high level of effectiveness against more than 10 broadleaf weeds. Also, the new herbicide is being used successfully in Brazil, the Western Hemisphere's second largest soybean producing country.

In addition, it is being evaluated for pre-emergence, early post-emergence and sequential treatments for weed control on peanuts and for post-directed weed control on cotton. It has not been cleared via Experimental Use Permit for these crops.

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Dinoseb Draws Warning

Continued from Page 5

private regulatory action very soon," says A. James Barnes, EPA deputy administrator. Exposure to dinoseb during its application and working in fields shortly after the application of this product are the particular agency concerns. Care should also be taken in handling or laundering contaminated clothing, the agency says.

The agency's action is based upon studies which EPA recently received indicating that dinoseb caused birth defects in laboratory animals. The effects were associated with exposure during pregnancy.

Defects include irreversible neurological and skeletal malformations in the offspring of animals exposed to the chemical.

"The available evidence shows that eating foods from dinoseb-treated fields does not pose a concern," Mr. Barnes adds. "The dangerous routes of exposure are inhalation and skin absorption by people applying the pesticide in the field."

The agency has also received other studies showing that dinoseb causes fertility effects in male rats and mice. While EPA's primary concerns are for women, because of the sterility studies the agency is recommending that all persons working with dinoseb take precautions from direct exposure associated with the application of the pesticide.

RESIDUE LEVELS LOW

Dr. Jack Moore, EPA assistant administrator for pesticide and toxic substances, says "The residue levels of dinoseb in crops are extremely low compared to the levels which cause birth defects in test animals. Hence, we do not believe that eating products from dinoseb-treated fields presents a concern. However, direct exposure to workers in the field as a result of application should be avoided."

Food and Drug Administration tested for residues of dinoseb in 70 products in 1985 and 1986. These included peanuts, sweet, red and white potatoes from three areas of the country, and other crops. No dinoseb levels were detected except in cotton seed meal. The cotton seed meal levels were 0.02 parts per million—a fifth of the allowable residue level.

Dinoseb is highly toxic to humans by exposure through the skin as well as inhalation and label directions require protective clothing for applicators. It is applied by either ground equipment, airplanes or hand held spray guns.

There are approximately 180 registered products containing dinoseb (or its four salts) as an active ingredient. Between 7 and 11 million pounds of dinoseb-active ingredient are annually sprayed as a liquid from airplanes, tractor-drawn equipment and hand-held equipment. As much as 25 percent of this pesticide can be used in fall and winter. Dinoseb is also used as a desiccant (to dry growing vegetation before harvest, as a fungicide and as an insecticide.

The major use sites by volume include soy-

beans (40 percent), cotton (15 percent), potatoes (16 percent), peanuts (9 percent), alfalfa (4 percent), snap beans (2 percent), peas (2 percent), grapes (2 percent), and almonds (1 percent).

Other use sites include clovers, flax, barley, oats, rye, wheat, apples, apricots, cherries, citrus, dates, figs, nectarines, olives, peaches, plums, filberts, pecans, walnuts, blackberries, blueberries, boysenberries, gooseberries, loganberries, raspberries, strawberries, cucumbers, pumpkins, squash, currants, lima and kidney beans, onions, garlic, hops, ornamentals, cone-bearing trees, right-of-ways, and aquatic drainage ditches.

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Cyanamid

Continued from Page 3

pressed interest in modulated windows, in which the glass panes are encapsulated into RIM frames away from the assembly line. The RIM can be impregnated with aliphatic isocyanates to add light stability to the frame, enabling it to retain its original color without repainting. To date though, the Mobay official points out that very little aliphatic isocyanates have been employed in RIM applications.

The Cyanamid announcement marks the second major aliphatic isocyanate capacity increase started in six weeks. At the end of July Mobay said it was implementing a 25-percent expansion of its HDI polyisocyanate capacity at Baytown in order to "keep pace with the growing demand from the paint industry." The expansion is due on line in mid-1987. At the time Mobay said supplies of HDI-based polyisocyanates had grown tight, mainly because of increasing demand for

high performance polyurethane coatings. The market is expected to further grow, Mobay says, because of active development projects in markets such as new auto body coats, maintenance coatings, wood, coil, and roof coatings and heavy industrial coatings.

Cyanamid says production facilities for the meta-TMXDI and meta-TMI will be completed in 1987. Later on, the company says, will begin producing para versions of the two compounds. The production route marks the first commercial attempt to produce isocyanates without phosgene since Arco also done an effort to make MDI without phosgene several years ago.

Membrane Gas

Continued from Page 7

are carbon, but in radically different forms," Dr. Narayan said.

The first applications of the new membrane will be for separating nitrogen from air, according to Earl Beaver, director of business development for Perma. Perma has sold more than a dozen nitrogen systems since 1983 based on "Prism" separation membrane gas separators introduced by Monsanto in 1979. These nitrogen systems have been primarily for inert blanketing on ships and offshore oil platforms.

Dr. Beaver says the new systems, called "Prism Alpha" nitrogen systems, will be three times more efficient than current ones.

The market for nitrogen in the United States during 1986 is estimated at nearly 1 billion. Dr. Beaver says the new system will be fabricated in a broad range of sizes and configurations to meet virtually every nitrogen need.

The nitrogen systems will be introduced commercially for a series of applications over the next four months. Several prototype and test systems have already been installed in a variety of industries, Dr. Beaver says.

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Cetus Forms New Company To Enter European Market

Cetus Corporation announced that it will form a wholly-owned subsidiary to develop, manufacture and directly market the company's therapeutic products in Europe.

"We believe that directly marketing these products ourselves in Europe is the approach that will achieve the most successful entry and the best financial return for our stockholders," says Robert A. Fildes, president and chief executive officer.

The products which will be the initial focus of the subsidiary, called EuroCetus, are interleukin-2, tumor necrosis factor, colony stimulating factor-1, human monoclonal antibodies for neutralizing endotoxins produced by Gram-negative bacteria, and immunotoxins for breast and ovarian cancer.

"These products are either in human clinical

trials or late stage preclinical testing in the US," says Mr. Fildes. "Therefore, our entry is well-timed because the products are at the optimal transfer stage, ready to enter European trials guided by the data and knowledge gained in the American studies. Over the longer term we expect therapeutic products to flow from Cetus to EuroCetus and vice versa."

"We have selected the first clinical study sites and will be initiating human trials of interleukin-2 in Europe by early 1987," Mr. Fildes adds. "Also, we have evaluated several locations for a development and production facility and hope to announce our site decision in the near future."

Cetus' therapeutic products are expected to be approved initially for cancer indications. The European cancer market is currently slightly larger than its US counterpart, with sales of approximately \$480 million. There were 1 million cancer deaths in Europe in 1984, and in 1985 over 4.8 million Europeans were under treatment or supervision for the disease.

Since the expansion into Europe involves costs that are incremental to Cetus' US operations, Cetus management said the move would require additional capital, despite the company's strong financial position.

"We expect to file shortly with the SEC a public offering of a \$75 million research and development partnership to fund our European activities," says Mr. Fildes.

Cetus is primarily engaged in the development, manufacturing and marketing of therapeutic products initially targeted at cancers and serious infectious diseases. In addition, the company has exclusive business relationships with major corporations in human diagnostics, agriculture, animal healthcare, industrial process and instrumentation for research and industrial users of biotechnology.

Neste Oy to Add Two Process Units

UOP Inc., a unit of Allied-Signal Inc., and Neste Oy of Finland have announced the commissioning of two UOP continuous catalyst regeneration platforming process units in Naantali and Porvoo, Finland.

The new UOP CCR platforming unit installed at Neste Oy's Naantali refinery is currently converting 7,100 BPSD of naphtha into high value gasoline blending components. The CCR platforming unit at Porvoo is designed to process 38,300 BPSD of naphtha feedstock.

The Porvoo unit, which came on stream in July 1986, is a revamp and upgrade of an existing semi-regenerative reforming unit to a UOP CCR platforming process unit with stacked reactors. The Naantali unit came on stream in December 1985.

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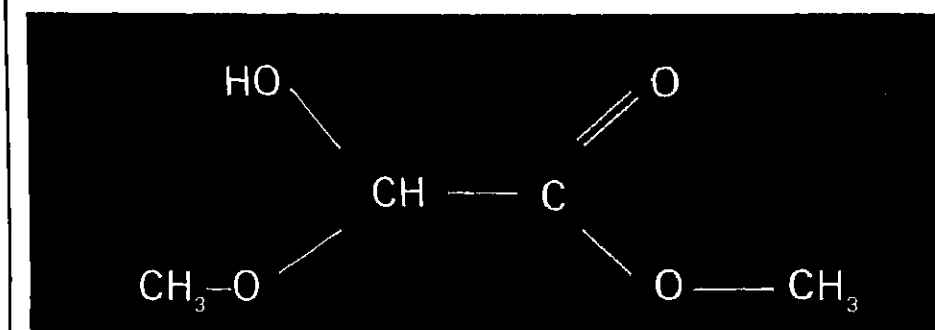
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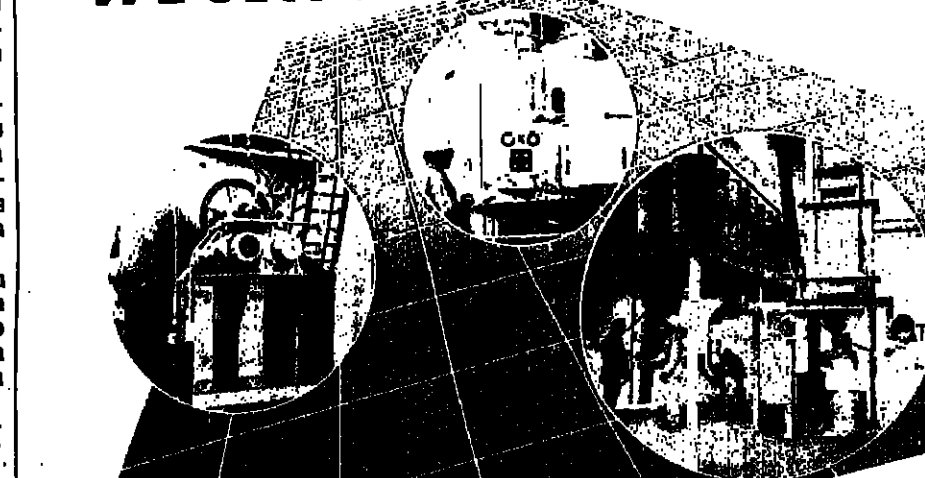
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DRUGS & FINE CHEMICALS

US Gelatin Hurt by Capsules, But Other Areas Seen Growing

Many gelatin producers agree that the troubles which have befallen the hard capsule industry in 1986 have trickled down to add to the gelatin industry's woes. This is not a unanimous opinion, however.

Because of tampering, many hard capsules have been taken off the shelves. The first and most prominent of these recalls was conducted by Johnson & Johnson, which halted production of "Tylenol." Others followed, including R.P. Scherer, which stopped manufacturing hard capsules in April. One producer says the hard capsule's decline "has had a significant effect" on the gelatin industry. "The gelatin business is in a state of overcapacity due to imports. This has just increased the problem, he says. Others agree.

In the absence of many hard capsule manufacturers, soft capsule usage has increased. These capsules also use gelatin, but gelatin producers explain that there is not as much money to be made in the soft capsule market. One says that the pork-skin derived gelatin that goes into hard capsules is generally of a higher bloom than the beef-hide derived gelatin that is used in soft capsules. He says that, in general, the higher the bloom, the greater the profit margin. Another producer notes that Johnson & Johnson's share was so large, its pullout was going to hurt the gelatin industry regardless of the bloom used.

PROBLEMS OVERCOME?

Some other producers, and believe that the gelatin industry's problems will be overcome. They admit that the short-term effects have been troublesome to a certain extent, but are convinced the long-term effects will not be great. These sources cite increased demand in other areas and the opinion that hard capsules will make a comeback. The latter point is agreed upon by most of the industry, which feels hard capsules are still the preferred dosage form, especially by older Americans.

Something the entire domestic industry agrees on is the effect of imports on the market. Producers see imports as being the main reason for oversupply, and claim that tariff discrepancies make the situation unfair. Colombian and Brazilian imports come to the US duty-free, while producers says there is no market for US product in those countries. Meanwhile, most Western European countries are charged with a tariff between 6 and 7 percent, while gelatin going to Western Europe from the US is slapped with a 12 percent tariff.

Imports to the US are up through June. Nearly 6 million pounds have entered the country, compared to 5.5 million pounds through June 1985. This is despite the lower US dollar.

But, because of the lower US dollar, and despite tariff discrepancies, US producers say the export market is growing. They feel that if the dollar keeps falling, this opportunity will continue to grow, and help alleviate domestic oversupply.

NEW CANDY FAD HELPS

Another thing which most producers are optimistic about is gummibears. This is the much-touted, gelatin-based candy the industry has been hoping will increase demand. All but one surveyed producers agree that is currently happening. The dissenter expresses disappointment at gummibears' growth rate. Others, however, think that some people in the industry overestimated the product's potential.

One producer thinks that General Foods' "Jello-Pops" is going to "take off," while another mentions that a minor but growing use for gelatin is in the sports games industry. He says that one company is manufacturing a dye-filled capsule, using gelatin, for simulated war games. So, overall, gelatin sources are convinced that demand will gradually grow, especially if hard capsules do return. However, many doubt the demand

will return to historical levels.

As growth occurs, producers think prices will rise. Prices are said to be firming now, after a lengthy period of softness. This is attributed to the need to restore profit margins, as well as the slightly growing demand, in some areas. Some say the hard capsule situation will probably prevent rapid firming. List prices are called unrealistic, and some producers say material can be purchased between \$1.50 and \$2 per pound, depending on the bloom. One producer, however, says the higher blooms can cost up to \$2.50 per pound.

ANNATTO EXTRACT — Miles Laboratories, Inc.'s biotech products division is increasing its prices for annatto food colors, effective on deliveries made on or after September 29.

The new prices for the company's AFC "Water Soluble 445" (single-strength) will be \$8.30 per gallon in 55-gallon, closed-head.

PRICES TRENDLINES

WEEK ENDING SEPT. 4, 1986

CHANGES/UP

D-cat-pen, \$1 per kilogram

CHANGES/DOWN

None

DRUGS INDEX

The Drugs & Fine Chemicals Index reflects the prices of 10 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986	211.10
Aug. 29, 1986	211.16
Aug. 8, 1986	211.10
Sept. 6, 1985	211.16

Chemical Prices Start on Page 36

non-returnable steel drums; \$8.80 per gallon in 5-gallon white plastic pails; and \$8.75 per gallon in four 1-gallon cartoned plastic bottles. AFC WS 890 (double-strength) prices, on the same basis, will be \$14.75, \$14.90 and \$15.20 per gallon, respectively. The increases average 3.5 percent.

According to a Miles spokesman, the increases were necessitated by "inordinately large" increases in bixin seed (the source of the color extract) and in utilities, labor, packaging materials and environmental waste systems. He says that in Kenya, a strike by farmers caused the bixin seed to remain on the vine longer than needed, and therefore it rotted and much of the crop was lost. Kenya and Peru are the main world sources of bixin seed.

DIAGNOSTIC REAGENTS — Ventrex Laboratories, Inc. entered an agreement with Dade/Baxter Travenol on September 1 to provide certain diagnostic reagents and components.

According to a Ventrex spokeswoman, the first order was accepted last week. The product involved in the agreement are expected to complement Dade's immunodiagnostic products. Neither Ventrex nor Dade will specify what products are involved in the agreement, saying that not disclosing these products is part of the deal.

Ventrex's spokeswoman says the agreement should increase the company's sales in hospital clinical laboratories, while still leaving room for direct solicitation of physicians regarding its rapid immunodiagnostic screening tests.

Ventrex, a biotechnology company, also recently entered a manufacturing agreement with the Warner-Lambert Company. The spokeswoman says this is part of Ventrex's plan to enter the over-the-counter market.

METHIONINE — Monsanto Agricultural

DRUGS & FINE CHEMS

Company's animal sciences division is raising its prices for the methionine hydroxyl-analogue feed supplements "Alimet" and "MHA" effective October 1.

"Alimet," a liquid methionine source, will cost \$1.15 per pound for bulk tank truckloads. This is an increase of 16c. per pound. Less than truckload shipments will be \$1.18 per pound. Meanwhile, the price of "MHA," the dry methionine source, is also increasing 16c. per pound, to \$1.13. Less than truckload shipments will cost \$1.16 per pound.

Monsanto notes that prices for both products will be 3c. per-pound higher for spot sales, and shipments to Arizona, California, Idaho, Nevada, Oregon, Utah and Washington will be an additional 5c. per pound.

Customers will be able to order "Alimet" and "MHA" at current price levels until September 30, providing all orders are shipped by October 31.

"This price increase will permit recovery from the effects of the strong dollar and inflation of several years ago," says a Monsanto spokesman. Prices were said to be low because of competition levels in 1985.

QUININE/QUINIDINE — Quinine and quinidine prices, which have been rising for all of 1986, continue to rise gradually. However, some speculate that prices have peaked, but add this depends on the US dollar.

The US dollar is considered the main factor in the products' firming. Last September, quinidine sulfate was priced between \$3.60 and \$3.70 an ounce. A year later, estimates range from \$4.25 to \$4.50 per ounce. Early in 1986, the price was between \$4.20 and \$4.25. Quinine hydrochloride is between \$2.50 and \$2.58 an ounce, while quinine sulfate is between \$2.38 and \$2.58 per ounce. These also represent slight increases over early-1986 levels.

In addition to the dollar, the rotting of Africa's cinchona bark is also cited. This has been a point of debate within the industry for years. Some sources say this blight has a very real effect on the marketplace, and therefore supplies are tight. Others, though, insist that while the problem is a real one, its extent is exaggerated in order to firm selling prices. Finally, some believe that if driving up selling prices were the sole consideration, they would be even higher than they are now. They say that with the presence of some spot

buyers selling at lower prices, though, they are forced to be competitive.

Ironically, Indonesian product is priced higher than African product. This is ironic because the Indonesians process their own material, rather than export it for processing. So, their costs are lower. But, an observer says those involved in Indonesian quinine (there is no Indonesian quinidine in the US) have decided to "be competitive" and charge more, at the risk of losing some business, because they feel the market can support higher pricing. An importer says that, with this philosophy, his company has "gotten business and lost business."

United States Department of Agriculture recently compiled 1985 cinchona bark statistics. A USDA official says Zaïre (the largest source) produced 3,900 metric tons last year, up from 3,400 metric tons in 1984. This total has crept upward the last few years, but is still considerably lower than the average total of the late 1970's. For example, in 1978, 5,400 metric tons were produced.

Rwanda's total is up considerably, to 716 metric tons, up from 1984's 600 metric tons.

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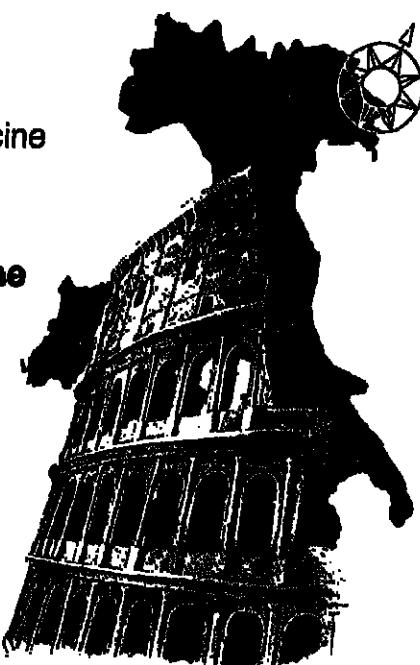


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CHEMICAL PROFILE

Continued from Page 54

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STRENGTH

Fall export shipments of phosphoric acid and ammonium phosphates should pick up since China and India are expected to re-enter the market after a year-long hiatus.

WEAKNESS

Producer operating rates were below 60 percent this Summer. Prices are a long-time low. Forecasters predict more farm acreage reductions for 1987. New production in North Africa and the Mideast will decrease the US share of the world market an estimated 10 percent by the end of the decade.

OUTLOOK

Despite shrinking share of the world market, US exports should grow, due to increased population and grain demand. No new plant construction is expected through 1990. World demand growth will improve operating rates.

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Chemicals May Detect Arson

Continued from Page 9

as wood, synthetic fibers (rugs), and plastics under controlled laboratory conditions.

Upon analysis of the soot from these fires, Mr. Chesler and his colleagues noticed that PAHs were showing up in easily detectable quantities. When the same household materials were burned without using accelerants, only minimal amounts of PAHs were present — "not enough to interfere with the test," Mr. Chesler says.

The technique appeared to be working in the lab, but the question remained: How well would it perform in an actual fire? To find out, Mr. Chesler enlisted help in gathering on-location soot samples.

He asked forensic chemists at the Treasury Department's Bureau of Alcohol, Tobacco and Firearms (BATF) to collect sooty residues from the fires that agency periodically starts for training purposes in abandoned residential buildings. Only a portion of the fires were initiated with accelerants, and NBS' job was to determine which ones.

Later, from resulting analyses of the soot samples, NBS researchers succeeded in identifying all the accelerant-started fires.

Despite its apparent promise as an arson detection tool, Mr. Chesler says the test method needs "considerable work" before it could be used as court evidence and that care must be taken when interpreting results. For example, the technique could not be applied in some situations such as a building that housed hydrocarbon-based liquids before the fire.

Mary Lou Fultz, a BATF chemist who has collected soot samples for the NBS research, says the technique could have value as a supplement to existing arson detection techniques. "I can see it adding credence to current methods," she says. (Arson is typically implicated when small traces of unburned accelerant are detected after the fire is extinguished.)

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Du Pont Test Help for AIDS

Du Pont's Biotechnology Systems Division has added to its growing line of AIDS research products by introducing a nick translated DNA probe for HTLV-III research.

The HTLV-III "Nick Translation Long Probe System" is designed to analyze research samples for the presence of HTLV-III by detecting sequences that are complementary to the radiolabeled probe provided in the kit.

The DNA probe can be used by researchers to confirm results from the Du Pont p24 RIA antigen kit that was introduced earlier this year.

Both tests are equally sensitive to p24 and are more quantitative than a reverse transcriptase assay. The high degree of sensitivity provides researchers with ability to study the action of drugs being tested against the HTLV-III virus.

The reverse transcriptase method of quantitating p24 is 300 times less sensitive than both the RIA and DNA probe systems.

Moreover, a reverse transcriptase assay is far more labor intensive and can take up to two days to complete.

The p24 RIA kit can provide a result in several hours, and the DNA probe system can detect 104-105 copies of HTLV-III DNA or RNA in an overnight exposure.

Studies with clinically relevant viral, bacterial and human DNA show no cross reactivity.

The HTLV-III Nick Translation Long Probe System comes with purified DNA fragment, standard curve positive control DNA, "NENSOB-20" cartridge, alpha 32p dCTP, DNase I, DNA polymerase I, control plasmid

DNA and deoxynucleotide triphosphate mixture.

A detailed manual, quality controlled protocols, and a troubleshooting guide are also provided to assist researchers less familiar with molecular biology procedures. Ten nick translation assays can be done with this system and 120 to 450 samples can be screened.

Patent Pact Set By the US, Korea

The Reagan Administration has negotiated an agreement with the government of South Korea that will halt Korean pirating of American patents and other intellectual property, including pharmaceutical and chemicals.

According to the White House, South Korea has agreed to amend its patent laws to include chemicals, pharmaceuticals and new microorganisms, remove restrictions on royalty terms in trademark licenses, and observe international agreements on copyright.

Current Korean law denies patent protection for pharmaceuticals and agricultural chemicals.

"This agreement represents a major achievement in our efforts to obtain effective intellectual property protection for American industries," said President Reagan. "Thus, this agreement will encourage free trade with the Republic of Korea and remove trade distortions."

Agreement by the Seoul government came almost a year after President Reagan ordered a formal investigation by US trade representative Clayton Yeutter into unfair trade practices that could have led to US economic retaliation.

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Radioactive Chemicals

Continued from Page 7

ter systems. All of the radionuclides appear in greater frequency and at higher levels in private wells and the smaller (those serving less than 1,000 people) public water systems.

Relatively high levels of the naturally-occurring radionuclides are found in specific areas of the country. The two isotopes of radium are most prevalent in the North-Central states and the Appalachian region. Initial monitoring data and surveys lead EPA to estimate that as many as 500 public water systems may exceed the interim standard for radium.

Almost all of these are expected to be from groundwater, not surface water, supplies. About two-thirds of those exceeding the interim standard of five picocuries per liter of water (a picocurie is one trillionth of a curie, a common measure of radiation) are in the range of five to 10 pCi/l.

The agency estimates the population risk of bone cancer from elevated levels of radium in water supplies is in a range between three and 60 deaths per year for each of the two radium isotopes. Outside the North-Central and Appalachian areas, radium has widespread occurrence throughout the United States but at levels which carry a very small health risk.

High levels of uranium in water are most prevalent in the Colorado plateau and the Rocky Mountain region. The population-weighted average uranium concentration in the United States is estimated to be 0.8 pCi/l.

Because of a large uranium deposit in South Dakota, that state has been found to have the highest average uranium concentration at 6.7 pCi/l. Most of the Western states have average concentrations above two pCi/l.

Projections from available data lead to estimates that a few hundred public water supplies may exceed 40 pCi/l, a risk level comparable to the interim radium standard.

The agency's future proposal to regulate radionuclides in public water supplies would include both Maximum Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs).

The goals (MCLGs) are non-enforceable health goals set at levels that will result in no known or anticipated adverse health effects, with an adequate margin of safety.

MCLGs for all the radionuclides mentioned are expected to be set at zero since they are carcinogenic and thus a margin of

safety cannot be established. EPA will also propose MCLs and monitoring requirements. MCLs are enforceable standards and are set as close to the goals as feasible, taking into account cost, availability of treatment technologies and other practical considerations.

The original Safe Drinking Water Act of 1974 required EPA to establish interim regulations for a limited group of contaminants and at a later date revised regulations for these and other contaminants. However, the 1986 amendments to the Act require EPA to develop MCLGs and MCLs simultaneously and to eliminate the distinction between interim and revised regulations.

Cyanamid

Continued from Page 3

which the glass panes are encapsulated into RIM frames away from the assembly line. The RIM can be impregnated with aliphatic isocyanates to add light stability to the frame, enabling it to retain its original color without repainting. To date though, the Mobay official points out that very little aliphatic isocyanates have been employed in RIM applications.

The Cyanamid announcement marks the second major aliphatic isocyanate capacity increase started in six weeks. At the end of July Mobay said it was implementing a 25-percent expansion of its HDI polyisocyanate capacity at Baytown in order to "keep pace with the growing demand from the paint industry." The expansion is due on line in mid-1987. At the time Mobay said supplies of HDI-based polyisocyanates had grown tight, mainly because of increasing demand for high performance polyurethane coatings. The market is expected to further grow, Mobay says, because of active development projects in markets such as new auto topcoats, maintenance coatings, wood, coil, pipe and roof coatings and heavy industrial coatings.

Cyanamid says production facilities for the meta-TMXDI and meta-TMI will be completed in 1987. Later on, the company says it will begin producing para versions of the two compounds. The production route marks the first commercial attempt to produce isocyanates without phosgene since Arco abandoned an effort to make MDI without phosgene several years ago.



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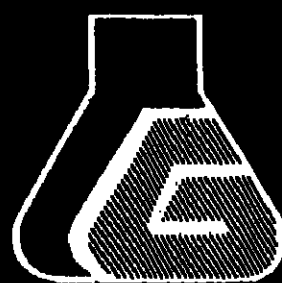
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Chemical Finance

BP's Profits Hold Despite Oil Price Decline

British Petroleum Company's historical cost profits before extraordinary items in the second quarter declined to \$417 million from \$445 million a year ago. On a replacement basis, profits rose to \$732 million from \$572 million a year ago. Inventory losses totaled \$415 million because of the oil price decline.

Chemical, Coatings Merger Trend Steady

There were 40 mergers in the chemicals, paints and coatings field in the first half of this year, versus 45 a year earlier, but the dollar value was nearly the same at \$2.9 billion, versus \$2.916 billion a year ago, according to W.T. Grimm & Co., Chicago. For all US industry, the value of first-half mergers declined to \$77 billion from \$100 billion last year.

Exxon's Shares to Be Listed in Tokyo

Exxon Corporation has applied for the listing of its shares on the Tokyo Stock Exchange. The listing, the first for any foreign oil company on that exchange, is expected to take place in the fourth quarter.

Gas Conversion Increases 9 Percent in 1985

Conversions of existing homes to natural gas from alternative fuels increased 9 percent in 1985 over 1984, according to the American Gas Association. Of total conversions to gas, some 76 percent, or 113,475 units, were from fuel oil. Conversions from electricity amounted to 20,808.

Loctite to Buy Remaining Luminescent Shares

Loctite Corporation, Newington, Conn., has agreed in principle to acquire all of the remaining shares in Luminescent Systems, Inc., of Lebanon, N.H., in which it has held 15 percent interest for the past two years.

Sohio to Issue Notes Indexed to Oil Price

Standard Oil Company, Cleveland, Ohio, will issue \$100 million of notes indexed to the price of oil and due September 1, 1989. Unlike the oil-indexed notes which the company issued in July, these notes will not carry fixed coupon debentures.

Staley Filing for Global Stock Offering

Staley Continental, Inc., Rolling Meadows, Ill., has filed an SEC registration statement for a proposed global offering of 4 million shares of common stock, 3 million for the US and 1 million for markets abroad.

3M Gives Analysts Optimistic Forecast

3M Company expects higher sales and earnings for the third quarter and for the full year, company executives told analysts in St. Paul, Minn. 3M's business is benefitting from a strong flow of new products and from programs to improve productivity and control costs, executives stated.

Vencap Invests \$3 Million in BioTechnica

Vencap Equities Alberta, Ltd., has invested an additional \$3 million (Canadian) in BioTechnica International of Canada, Inc., raising its total investment to \$7 million. The companies have agreed to an additional \$5 million investment over the next two years subject to certain conditions.

Wertheim Recommends Nova and Imre Corp.

Wertheim & Co. has reaffirmed its recommendation on the shares of Nova Pharmaceutical Corporation and is advising clients interested in speculative, high growth small companies to purchase Imre Corporation's shares. Takeda Chemical, of Japan, has taken an equity position in Imre and will seek rights to develop the company's "Proserba" pill for the Japanese market. Nova has exclusive worldwide rights to use Pharmatec Corporation's carrier technology for treating brain tumors and inflammations.

Canonie Making First Public Offering

Kidder, Peabody & Co., as manager of the underwriting group, announced the first public offering of 1,750,000 common shares of Canonie Environmental Services Corporation at a price of \$15 per share.

DSM's Net Up Despite Lower Sales

Dutch State Mines, the inorganics producer headquartered in the Netherlands, raised its net income in the first half to the equivalent of \$94 million from \$91 million a year ago. Sales declined to \$485 million from \$600 million and operating profit eased to \$16 million from \$218 million, but lower taxes and smaller non-operating charges produced a positive trend.

Engelhard Boosts Cash Dividend

Directors of Engelhard Corporation, Edison, N.J., have approved a 6 percent increase in the cash dividend on the common stock to 19 cents per share from 18 cents, payable September 30, to holders of record on September 17.

Greenwell Montague Reaffirms Bayer Rating

Greenwell Montague Research has reaffirmed its "buy" rating on the shares of Bayer AG, noting that it views the long-term prospects of Bayer as a little stronger than last year's two largest German rivals — Hoechst AG and BASF AG.

Damon Withdraws Subordinated Debenture Offering

Damon Corporation has withdrawn its proposed public offering of convertible subordinated debentures. Damon had no specific use for the funds, and the present market no longer is favorable.

Standard Gypsum Completes Stock Sale

Standard Gypsum Corporation, Houston, Tex., has completed the sale of 1 million shares of its common stock to General Minerals Corporation, of Canada, and 1 million shares to Loeb Investors Company. The company also has agreed to purchase from Loeb Corporation 12,428 acres of land in Culberson County, Tex., believed to contain in place of 200 million pounds of gypsum reserves.

National Gypsum Sells Glass Assets

National Gypsum Company has signed a letter of intent to sell most of the assets of its Binswanger Glass subsidiary to ACI International Ltd., an Australian manufacturer of glass and plastic containers and building products. The purchase price was not disclosed.

Binswanger is headquartered in Memphis, Tenn. and distributes glass throughout the South and fabricates mirrors and thick glass for furniture applications.

National Gypsum says the sale is part of its strategy to divest itself of non-core business units. The company says it is refocusing its operations on building products and services.

ACI currently distributes and fabricates glass and mirror products on the West Coast and is the leading marketer of glass products in Australia.

Dow Sells Stake In the Rorer Group

Dow Chemical Company has sold its stake in Rorer Group in a private transaction for approximately \$80 million, or \$39.50 per share. Dow held just over 2 million shares, or about 8.5 percent of Rorer's total shares outstanding.

Dow accumulated the shares for investment purposes over a short period, running from mid-1983 to early 1984.

Dow says the sale of the shares is part of the normal management of the company's

funds and investments.

According to Dow, proceeds from the sale will be used to retire a portion of the company's debt.

As a condition of the sale, the purchaser of the stock has agreed to pay Dow an additional amount should Rorer merge with or be acquired by another company within the next 12 months under terms in which the value of Rorer shares exceeds \$43 per share.

Last Summer, Dow unsuccessfully fought adoption by Rorer directors of a "poison pill" provision designed to discourage a takeover.

Pfizer to Acquire A Pump Producer

Pfizer, Inc. has signed an agreement to acquire Infusaid Inc., a producer of implantable and external infusion pumps, from Intermedics Inc. Terms of the deal were not disclosed.

Infusaid, based in Norwood, Mass. will join the Shiley division of Pfizer's Hospital Products Group.

The purchased company sells pumps that are used to regulate the flow of medicine into hospital patients, and had sales of \$13.5 million last year.

Pfizer's Hospital Products Group was formed in 1972, and is a worldwide manufacturer and marketer of a variety of products including artificial hips and knee joints and respiratory equipment.

The Division had worldwide sales of \$555 million last year. Intermedics, headquartered in Angleton, Tex., produces medical equipment, including pacemakers.

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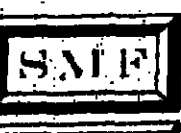
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Chemical Safety Course Subject For Employees

Mentor Learning Systems Inc., a new company located in Santa Clara, Cal., has introduced two interactive computer-assisted training programs developed to help meet federal Occupational Safety & Health Administration requirements.

The two programs — Chemical Safety: A Hazardous Materials Handling Program, and Managers Safety: A Training and Appraisal Program — teach managers and employees about safe industrial practices and the requirements for establishing safety programs designed to meet government regulations and industry standards.

The software training programs were developed under an OSHA grant that was awarded to the American Electronics Association (AEA), the electronics industry's largest trade association.

Chemical Safety teaches employees how to work safely with hazardous chemicals and allows managers to document employee training for compliance with the latest federal OSHA guidelines.

Managers Safety teaches managers about government regulations on safety in the industrial workplace and enables them to evaluate their company's current safety program. The programs constitute Mentor's product line called the Ultimate Safety Series.

"The need for safety in the workplace is a top priority for industry today, especially in light of the current OSHA right-to-know rules and the increasing costs associated with industrial accidents," says Ken Zerbe, president and chief executive officer of Mentor Learning Systems.

The newest OSHA rules, which took effect in May 1986, require that all workers who come in contact with chemicals and other hazardous materials be given safety training, which must be documented by the com-

panies providing that training. The rules apply to about 320,000 manufacturing businesses and 575,000 chemicals. According to OSHA estimates, 14 million workers are affected.

Herbicide 2,4-D Is Under Fire

Environmental Protection Agency says it plans to conduct a special review of the herbicide 2,4-D to determine whether its use should be restricted based on a recent study which linked the chemical to cancer in farmers.

National Cancer Institute researchers have found that farmers exposed to 2,4-D at a minimum of 20 days per year had six times the normal rate of non-Hodgkin's lymphoma. Farmers who mixed batches of the herbicide had cancer rates eight times higher than normal. Non-Hodgkin's lymphoma is a tumor that develops in the lymph system.

A spokesman for Dow Chemical Company, one of a dozen US companies producing the herbicide, notes that a number of studies have been conducted on the health effects of 2,4-D, including a New Zealand project that found no link between the chemical and lymph cancer.

EPA toxicologists, who say the new study raises serious concerns, are currently reviewing another laboratory study that found male rats developed brain tumors from exposure to 2,4-D. However, the agency says it has not determined the reliability of that study yet.

Based on the results of its special review, EPA could restrict the use of the herbicide or even order it off the market. But because benefits must be weighed against risks, EPA has been reluctant to ban widely used products.

The NCI researchers recommended that the increased cancer risk could be cut by 40 percent if workers wore protective clothing while mixing and applying the herbicide.

The was carried out in conjunction with Kansas State University and the University of Kansas.



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PERFUMES & FLAVORINGS

Phenyl Ethyl Alcohol Prices Stable Despite Rise in Imports

Phenyl ethyl alcohol prices continue stable amid steadily increasing demand and even greater availability. Year-to-date imports through June, 1986, totaled 884,633 pounds, almost 180,000 pounds more than the January-June total for 1985: 707,928 pounds. If current import rates continue, the projected 1986 total would reach 1,769,266 pounds, more than 430,000 pounds over the 1985 year-end figure of 1,338,726 pounds.

Prices have held at \$2.10 to \$2.20 per pound despite import surges and a fluctuating dollar. "The price is closely tied to the strength of the dollar," says a domestic producer. "Now that the dollar has weakened, the price is quite firm." Domestic manufacturers of phenyl ethyl alcohol are therefore pleased with the stabilized prices. A weakened dollar means the various importing countries, primarily China, Japan, France and Mexico, have less of an advantage on the US market.

Conversely, importers see the pricing as too low. "The material is too inexpensive," states an importer. Another importer sees overseas production as responsible for the volume. "There is plenty of demand but even more supply." Imports account for roughly 80 percent of the US market.

BASIC BUILDING BLOCK

Phenyl ethyl alcohol is used in a large number of perfumery items. As one manufacturer notes, "It is one of the basic building blocks in making everything from toilet soap to bath oil." Subsequently, the successful marketing of one item that includes this ingredient could increase consumption.

Despite the prevalence of phenyl-ethyl alcohol in the perfume industry, "it is also used as a starting material for other products outside the fragrance market," says an importer. However, he maintains that although consumption is increasing, the established applications remain static. "Buying patterns don't represent a fundamental shift in popularity."

Although phenyl ethyl alcohol has been under investigation to determine whether or not it is a carcinogen for the past fifteen years, the Food and Drug Administration, National Cancer Research Institute and the Research Institute for Fragrance Materials are in agreement that there is no threat. According to the Cancer Society, "Phenyl ethyl alcohol is not listed as a known or suspected carcinogen." However, a representative from the Research Institute for Fragrance Materials says that "in contrast to the fairly routine, simple tests of the past, more serious tests are currently under way."

LIME OIL — Lime oil prices remain soft at \$5 to \$5.75 per pound as demand continues to weaken. Imports were down from 132,401

pounds in May to 84,156 pounds in June, 1986.

"People are going hand-to-mouth because the demand is so soft," says an importer. "No one is likely to inventory when prices are at such a low point." Another importer also sees the material being shipped on a limited basis: "Importers are buying only as required."

Prices have plummeted over the last year-and-a-half from almost \$18 per pound in February, 1985, to \$5 per pound today. An

PRICES TRENDLINES

WEEK ENDING SEPT 5, 1986

CHANGES/UP

Anise Seed, Turkish, 2-5c. per lb.
Aniseed Seed, Kenyan Ltd., 7c. per lb.
Cassia, Indonesian A, 12-15c. per lb.
Cassia, Chinese Tungling, 12c. per lb.
Cassia, Chinese Shikang, 12c. per lb.
Oil Seed, Egyptian, 5c. per lb.
Laurel Leaves, Turkish, 5-10c. per lb.
Nutmegs, E.I. Reconditioned, 6c. per lb.
Oregano, Greek/Turkish, 25c. per lb.
Pepper, Brazilian black, 4c. per lb.
Pepper, Malabar black, 4c. per lb.
Pepper, Muntok white, 2c. per lb.
Turmeric, Allepey FAQ 6-6.5%, 2c. per lb.

CHANGES/DOWN

Allspice, Guatemalan, 1c. per lb.
Allspice, Mexican, 2c. per lb.
Coriander Seed, Moroccan Delivered, 1c. per lb.
Cumin Seed, Indian, 1c. per lb.
Cumin Seed, Iranian, 1c. per lb.
Cumin Seed, Chinese Reconditioned, 3c. per lb.
Marjoram, Egyptian, 1-2c. per lb.
Nutmegs, E.I. Reconditioned Del., 8c. per lb.

PERFUMES INDEX

The Perfumes & Flavorings Index reflects the prices of 11 representative materials in this sector and the quantity of each supplied in 1985.

Sept. 5, 1986 71.00
Aug. 29, 1986 71.00
Aug. 8, 1986 71.00
Sept. 6, 1985 71.00

Chemical Prices Start on Page 38.

analyst attributes the falling prices to Mexico's over-production. "There is a huge oversupply of lime oil in Mexico."

Buyers had hoped the use of fruit juices in domestic soft drinks might stimulate the lime oil market, but grapefruit oil remains the ingredient of choice. "The soft drink industry has had little demand effect on lime oil; we haven't seen any across-the-board changes whatsoever," says a broker.

With both demand and pricing soft, an importer finds the material a risky investment: "If the price does escalate, people will move into another oil, such as lemon or orange, rather than pay more for lime. There is very little money in lime oil."

VETIVER OIL — Haitian vetiver oil has climbed \$3.50 per pound over the past two weeks, from \$24.50 per pound to \$28. "The Haitian oil is very good material," says

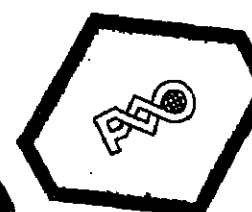
SEED & SPICE IMPORTS: MAY

A SELECTION OF STATISTICS FROM THE BUREAU OF CENSUS.

	MAY	APRIL	1986 TO DATE	MAY '85
Cummin seed..... lb.	619,831	621,830	3,854,871	667,417
Celery seed..... lb.	198,121	227,877	1,097,519	416,973
Cinnamon, unground..... lb.	198,121	100,268	1,178,488	183,706
Coriander..... lb.	275,759	170,048	1,337,881	400,884
Cumin seed..... lb.	676,341	698,384	2,733,270	871,963
Fennel seed..... lb.	826,122	328,149	3,342,210	154,207
Ginger root..... lb.	845,848	299,467	2,599,488	841,228
Mustard seed, whole..... lb.	824,127	933,567	3,358,288	7,151,494
Nutmeg, unground..... lb.	7,230,638	7,511,870	34,100,218	322,328
Oregano, whole..... lb.	288,359	280,898	1,795,432	230,186
Pepper, black, unground..... lb.	820,682	824,780	3,391,222	1,331,495
Pepper, black, ground..... lb.	1,181,267	912,663	2,648,474	1,894,006
Pepper, red, unground..... lb.	11,282,238	8,412,198	36,138,518	1,894,006
Pepper, red, ground..... lb.	1,747,841	149,945	6,546,480	1,894,006
Pepper, white, unground..... lb.	826,732	261,217	2,331,861	649,748
Sage unground..... lb.	113,640	722,713	188,551	285,029
Turmeric..... lb.	238,138	502,889	1,428,361	880,420
Vanilla beans..... lb.	886,780	418,264	1,419,319	178,911
Vanilla pods..... lb.	82,048	86,264	1,419,319	178,911

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PERFUMES & FLAVORS

an importer, "but the price is prohibitive." Chinese and Javan velvet oil are priced at less than two-thirds of the Haitian level, at \$17 to \$17.25 per pound.

CASSIA — The cassia market continues to firm with spot prices up 12 to 15c. per pound. Points of origin in Indonesia are offering only small amounts to shippers. "It appears that a cartel is forming and an effort to coordinate a price hike is succeeding," says a broker. Another industry analyst says these claims are unlikely to be realized. "It's always in vague terms that we hear about this." He notes that the market is resistant. "Demand rarely varies; when they raise or lower prices consumption stays the same. The market is inelastic," he says.

OREGANO — Greek and Turkish oregano are up still further to \$2.25 per pound from \$1.15 three weeks ago. The 1985 crop is gen-

erally considered to be exhausted, with no new information on the 1986 crop available. "We're just waiting," says a broker. "The only change is the escalating price of last year's oregano."

Pfizer Breaks Ground For Cogeneration Unit

Ground has been broken in Southport, N.C., for 110-megawatt cogeneration plant that will supply steam to Pfizer's nearby citric acid plant while generating electricity for the Carolina Power & Light Co. at Brunswick.

Located on a 30-acre CP & L site due West of Pfizer, the cogeneration facility will be built by Cogentrix Inc. of Charlotte at an estimated cost of \$80 million.

Pfizer says project will serve as a satellite energy plant for the company, a heavy consumer of steam in Southport. Steam ex-

hausted from the Cogentrix turbines and piped to the Pfizer plant will improve the company's position as a manufacturer of citric acid, Mr. Adams said.

According to Larry Frost, Cogentrix vice president, the Brunswick County installation is a sister to a similar power plant designed to serve the textile industry at Roxboro, N.C. Both will conform to state and Federal environmental standards in accordance with the Public Utility Regulatory Policies Act of 1978 which was enacted to stimulate cogeneration in a broad array of industrial and commercial applications.

Landscaping is an intrinsic part of the plant design which reflects advanced technological and pollution control concepts, Mr. Frost added.

Also participating in the groundbreaking ceremony with Cogentrix executives were U.S. Congressman Charles Rose representing North Carolina's Seventh District; Secretary of Transportation James E. Harrington; who attended for Governor James Martin;

Donald E. Kolowsky, executive vice president — Pfizer Chemical Division; Donald E. Farley, senior vice president — Pfizer Chemical Division, and Michael E. de Sherbin, director of the Resources Development Commission for Brunswick County.

Pfizer's citric acid facility at Southport recently observed its tenth year of operations. The plant is designed for easy expansion to provide capacity for growth in citric demand, particularly in emerging industrial and detergent applications, Mr. Adams said.

Citric functions as an acidulant, flavorant and preservative in a variety of foods and beverages and in pharmaceutical and cosmetic applications.

Pfizer Inc. is a worldwide research-based company with businesses in health care, agriculture, specialty chemicals, materials science and consumer products. The company reported sales of more than \$4 billion in 1985.

EPA Proposes Methanol Rule

Environmental Protection Agency has proposed pollution control measures for future motor vehicles designed to use pure methanol as a fuel.

EPA is proposing low and high altitude emission standards for methanol-fueled passenger cars, light and heavy trucks and motorcycles beginning with the 1988 model year.

In general, the proposals specify standards for methanol-fueled vehicles which correspond with standards currently applicable to gasoline- and diesel-fueled vehicles.

Methanol-fueled vehicles are expected to be able to comply with the proposed standards using very similar technology to that used for gasoline and diesel vehicles.

"This approach," said Craig Potter, EPA Assistant Administrator for the Office of Air and Radiation, "will provide equal environmental protection for vehicles of different fuel types while removing regulatory impediments to the production of methanol-fueled vehicles."

METHANOL VEHICLES LIMITED
Methanol vehicles are currently being built only in limited numbers by automobile companies and research groups. Several test fleets are in operation in California and other parts of the world.

Methanol is appealing for several reasons, EPA noted. The technology to produce methanol from US-based energy sources is well known. Engines designed to operate on methanol are more fuel-efficient than similar gasoline engines. Also, engines using methanol have relatively low emissions of both nitrogen oxides and particulates.

The proposed carbon monoxide, nitrogen oxide and particulate standards are identical to those for current vehicles. Particulate and smoke standards, which currently apply only to diesel-fueled engines and vehicles, are proposed for methanol engines and vehicles which are non-throttled in normal operation (diesel-fueled engines do not typically use a throttle). A carbon monoxide standard for vehicles at idle is also proposed.

The major difference between the proposed standards for methanol vehicles and those currently applicable to gasoline and diesel vehicles is in the formulation of the hydrocarbon emission regulations. Methanol engines emit higher levels of methanol and formaldehyde than current engines, and these chemicals are not measured under existing test procedures. Therefore, the proposals would require new procedures to be used to measure methanol and formaldehyde. These pollutants would then be included with other hydrocarbons in a total organic carbon standard equal to the amount of organic carbon currently allowed to be emitted from existing vehicles.

Existing standards limit gasoline and diesel passenger cars to 0.41 grams per mile hydrocarbons, 3.4 gpm carbon monoxide and 1.5 gpm nitrogen oxides. Diesel cars are limited to 0.3 gpm particulates beginning with the 1987 model year.

Public comments received in response to an Advance Notice of Proposed Rulemaking issued by EPA in April, 1984 have been taken into the present proposals.

HEAVY & AG CHEMICALS

Phosphate to Recover

Continued from Page 7

agulf scenario, at least to a point. Harry Baumes of Chase Econometrics, Bala-cynwyd, Pa., feels it works at least as a best picture analysis. He notes that changes in world food consumption patterns affect grain and consequently fertilizer production.

Increased poultry consumption tends to decrease grain demand, as poultry are a much more efficient grain converter than are beef.

Likewise, he points out that phosphate production by countries such as Tunisia, Morocco and Jordan is generally state-controlled. These countries are not producing and selling on a profit-motivated basis, and are often interested mainly in generating foreign currency. Mr. Baumes does not see these producers as an insurmountable threat, but does regard them as a considerable question-mark.

For the present, though, observers point mainly to two bright spots: low inventories and signs that the export market is picking up.

Mr. Nyrti of Texasgulf says that while 1986 phosphate shipments are expected to hit 9.4 million tons, production is going to be closer to 4.7 million tons, with the difference being made up by inventory reductions.

Many producers agree with this idea, saying that most of them are sold out pretty much through October. Helping to deplete inventories was a mid-August tender by Pakistan of about 250,000 metric tons.

A.L.D. SPONSORED TENDER
Phoschem, the export cartel representing some of the industry, was unable to participate, as the tender was sponsored by the Agency for International Development and was technically a domestic sale. Sources report that IMC and Texasgulf got the bulk of the order, with Gardiner taking the balance.

The negative side of the tender was the price between \$135 and \$137 per metric ton, bagged and f.o.b. vessel, according to one source. Another source comments that he couldn't have bought the raw materials for that price. Export prices are now said to be running in the \$138-to-\$140-per-metric-ton range.

Phoschem reports that other countries such as Iran, India and Japan have been active buyers, if not in such large quantities. Libya is reported to have purchased about 100,000 metric tons from Turkey and Korea. This should help US business, at least indirectly.

Another tender from Pakistan, as high as 350,000 metric tons, has been rumored. China is said to still be shipping from its last-year orders, but is expected to be back in the market soon.

Fred Blesi, president of Phoschem, says that after the Summer break-up of the group, it now includes Freeport, W.R. Grace, IMC, Occidental and Texasgulf. These producers comprise about 50 percent of industry capacity that is now running, and are, Mr. Blesi feels, the ones who will survive the present crisis.

On the domestic side of the business, producers are waiting to see what Fall fertilizer demand will bring. At present, prices are

quoted between \$130 and \$132 per ton, f.o.b. US Gulf. These are called below cash cost by many. Business, as expected, is fairly quiet at present.

Farmiland Industries says it will restart one of its Greenbay, Fla., facilities this week. Some in the industry question the logic behind the decision, though one says the company is rumored to have a good deal on phosphate rock.

Not operating, however, are Ammax, CF Industries in Barrow, Fla., and Beker Industries in Conda, Ida. When and if these plants will reopen is still up in the air.

BASES & SALTS

ALUMINUM SULFATE — Stauffer Chemical Company says it is increasing its

PRICES TRENDLINES

WEEK ENDING SEPT. 5, 1986

CHANGES/UP

Caustic Soda, \$25 per ton

CHANGES/DOWN

None

HEAVY & AG INDEX

The Heavy & Ag Chemicals index reflects the prices of 18 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986 113.69
Aug. 29, 1986 113.69
Aug. 8, 1986 113.69
Sept. 6, 1985 113.89

Chemical Prices Start on Page 36

distributor price for dry alum, effective October 1, or as contracts permit.

The new distributor price for standard ground aluminum sulfate in 100 pound bags will be \$205 per ton, f.o.b. Bastrop, La., Houston, Tex., Chicago Heights, Ill. and Atlanta, Ga. On the West Coast the new price will be \$220 per ton, f.o.b. Richmond, Calif.

Material sold in 50 pound bags will carry a \$10 per ton premium over the 100 pound bag price; bulk shipments will be discounted \$10 per ton from the 100 pound bag price.

In addition, powdered alum in 100 pound bags will be increased to \$275 per ton on the West Coast and \$245 per ton f.o.b. other producing and warehouse locations.

The Stauffer announcement follows a similar announcement made by General Chemical (CMR, 9/1/86, pg. 30).

CAUSTIC SODA — Vulcan Chemicals has increased its price for 50 percent caustic soda by \$25 per equivalent ton. The move was effective August 29 to spot customers and as terms allow for contract customers.

Pricing, f.o.b. shipping point, for diaphragm-grade will not exceed the following scheduled prices: Wichita, Kan., \$215 per ton; Gelsmar, La., \$195 per ton; Port Edwards, Wisc., \$245 per ton; Lynn Park, Ala., \$245 per ton; Long Beach, Calif., \$265 per ton; Denver, Colo., \$295 per ton; Jacksonville, Fla., \$245 per ton; Lemont, Ill., \$220 per ton; Buffalo, Iowa,

FERTILIZER CHEMICAL OUTPUT: JUNE

CENSUS BUREAU NUMBERS IN SHORT TONS ON KEY FERTILIZERS.

	JUNE	MAY	JUNE '85
Ammonia, syn., anhyd.	1,089,515	1,255,069	1,407,413
Ammonium nitrate	447,765	494,787	507,568
Ammonium phosphate	151,253	195,179	199,935
Other ammonium phosphates	70,539	74,901	73,242
Other ammonium phosphates	48,910	52,488	47,606
Ammonium sulfate	150,097	191,832	159,384
Ammonium phosphate	845,845	891,861	844,593
Nitric acid	731,268	824,901	682,225
Phosphoric acid	330,461	775,515	846,524
Sulfuric acid	2,510,571	3,105,215	3,223,730
Superphosphate, concentrated	149,781	192,580	222,773
Superphosphate, normal & enriched	3,313	12,207	30,023
Superphosphate and other phosphate fert.	921,189	1,031,144	1,315,239
Total	489,889	908,224	997,542

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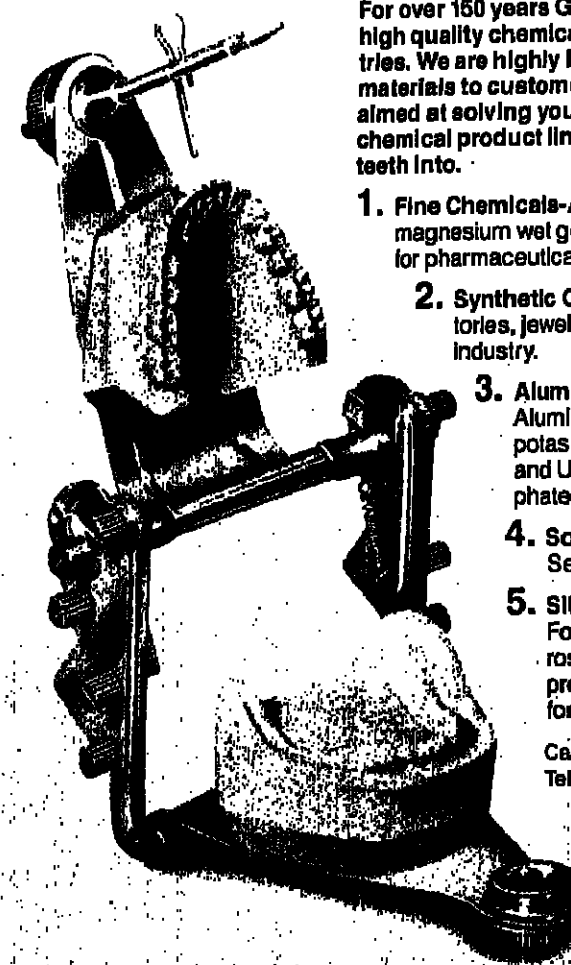
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HEAVY CHEMICALS

\$220 per ton; Baltimore, Md., \$240; St. Louis, Mo., \$225 per ton; Bayonne, N.J., \$240 per ton; Cincinnati, Ohio, \$220 per ton; Chattanooga, Tenn., \$245 per ton; Houston, Tex., \$195 per ton.

Prices, f.o.b. shipping point for low salt grade will not exceed the following scheduled prices: Wichita, Kan., \$235 per ton; Port Edwards, Wisc., \$265 per ton; Long Beach, Calif., \$285 per ton; Denver, Colo., \$315 per ton; Lemont, Ill., \$240 per ton; St. Louis, Mo., \$245 per ton; Houston, Tex., \$215 per ton.

The price for diaphragm grade 73 percent liquid caustic soda has also been increased \$25 per ton, not to exceed the schedule price of \$245 per ton, f.o.b. Wichita, Kan.

Delivered cost on all grades of liquid caustic soda will be equalized with recognized competition at seller's option. When the superfund tax is reauthorized, Vulcan will add the appropriate tax as a separate line item to all invoices.

SULFUR DIOXIDE — C-I-L Inc. says it is increasing its price for sulfur dioxide to \$230 per ton from \$220 per ton. The new price is effective October 1, and is f.o.b. Chicago.

Although C-I-L joins Stauffer Chemical (CMR, 8/18/86, pg. 28) and Cominco America (CMR, 9/1/86, pg. 31) in posting sulfur dioxide increases, a spokesman notes the increase is necessitated primarily to offset costs related to investment in new equipment.

C-I-L, he says, is in the process of relocating its railcar-to-tanktruck transfer facility to the site of its Chicago terminal in order to consolidate operations.

The company also recently purchased an additional tanktruck, which, he says, will help to maintain the company's high level of customer service.

C-I-L markets sulfur dioxide produced by Inco in Coppercliff, Ontario.

In a related matter, Stauffer Chemical Company notes that starting September 1 it is offering food grade liquid sulfur dioxide on a regular basis. Stauffer says the material meets all FCC requirements. It is priced at \$240 per ton, f.o.b. Hammond, Ind., Baton Rouge, La. and Houston, Tex.

Late last week Tennessee Chemical Com-

pany said it will boost contract prices for bulk liquid sulfur dioxide shipped from Copperhill, Tenn., by \$10 per ton, effective October 1 or as contracts permit. The action will raise Tennessee's list prices for liquid sulfur dioxide to \$230 per ton.

A Tennessee spokesman says the initiative represents the first industry price hike in 2 1/2 years. He says liquid sulfur dioxide costs have been increasing and that demand is strengthening.

Biotech Test Set in Florida

The world's first field test of genetically engineered, caterpillar-resistant plants has been approved in Florida by the US Department of Agriculture. Dr. Ronald Meeusen, manager of Rohm & Haas Company's Agricultural Biotechnology Research Program, said Rohm & Haas will test the plants in Homestead, Fla.

The experimental plant is a dwarf laboratory variety of tobacco which has had its genetic structure altered by the addition of a single gene of *Bacillus thuringiensis*, a naturally occurring biocontrol organism found in the soil. It has been used for more than 30 years as an environmentally safe, biodegradable insecticide. Rohm & Haas said, "not only to moth caterpillars, *Bacillus thuringiensis* is non-toxic to other living organisms."

If the field tests are successful, said Dr. Meeusen, the technology could be applied to citrus, cotton, soybeans, corn, tomatoes, rice, potatoes, wheat, sugar beet and cane, tobacco, timber and shade trees. The potential savings of insect-resistant plant to farmers worldwide could amount to hundreds of millions of dollars annually, the company claims.

Moth caterpillars are the most destructive insects to world agriculture and forestry. Their common names include gypsy moth, cotton budworm, cotton bollworm, cutworm, armyworm, corn ear worm, cabbage looper, spruce budworm and pine borer.

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Continued from Page 3

year, up from 590,000 tons in 1972, for an average annual increase of 5.6 percent.

Furthermore, there's little doubt that the pace is accelerating in the 1980's. The AAI in West Europe in 1983-1984 jumped to 10.5 percent and the increase for 1984-1985 is estimated to have been about 6.2 percent.

The figures compare with the West European consumption of plastics generally during 1985 of 18.8 million tons as against 11.7 million tons in 1982. This represents a modest 3.7 percent average annual increase during the period.

Some of the highlights Bayer expects to show at the trade fair include liquid crystal polymers, thermoplastics such as polyphenylene sulfide and aromatic polyesters, a high heat-resistant, fully hydrogenated nitrile rubber called "Therban," paint raw materials aimed at coatings for plastics and car bodies and a high-performance glass fiber composite tradenamed "Polyval."

Emphasis across the product line will be, as in years past, on the three major end-use industries — automotive, electrical and electronic engineering and construction.

In the automotive area, the Rover 800 luxury car, which was launched in July and will be shown at K '86, uses Bayer engineering plastics in more than 25 individual applications in eight different areas of the vehicle. The Rover 800 is at this point the UK car with the highest proportion of Bayer engineering thermoplastics — each car containing a total of 34 kilograms, the company says.

"BREAKTHROUGH" PREDICTED

The company is predicting a "breakthrough" for mass-produced thermoplastic automotive wings beginning in 1987 and says it will be featuring prototypes for the Lancia Y10 and the "Audi/Bayer wing study."

Other automotive projects include a prototype engineering polymer-based tailgate, developed in collaboration with Comind Divisione Plastica of Italy and polyurethane foam for a compact bumper system on one of the Ford Escort models.

Dr. Weirauch says a major objective of the plastic group has been improvement of productivity and hence profitability for processors and that newly-developed ABS, polycarbonate and ABS/polycarbonate blend thermoplastics to be shown at the fair will do just that.

While increased productivity for these amorphous thermoplastics is achieved by improving flow, Dr. Weirauch says the same objective is gained with partially crystalline thermoplastics by increasing the rate of crystallization and solidification.

He cites reductions in cycle times of 20 to 25 percent for special Bayer grades of nylon 6 and polybutylene terephthalate in some applications.

Altogether, he says Bayer has developed 25 new kinds of thermoplastics in recent years whose improved processing characteristics bring increased efficiency and productivity.

In high-performance polymers, Dr. Weirauch says Bayer's development of amorphous thermoplastics with improved heat resistance has taken the company beyond polycarbonate to the aromatic polyesters and polyester carbonates, which are suitable for temperatures between 150 and 190 degrees Centigrade.

SELECTED GRADES DEVELOPED

First introduced at K '83, selected grades have been developed and improved. One, APE-50 (aromatic polyester), with a Vicat softening point of 170 degrees C, is available in commercial quantities, Dr. Weirauch says, while other materials with higher heat resistance are still being produced only in pilot quantities.

In the field of partially crystalline materials, Dr. Weirauch says polyphenylene sulfide represents an important new thermoplastic for Bayer. Selective market trials are underway now, following the start-up of semi-commercial production.

Liquid crystal polymers, also introduced at K '83, have reached semi-commercial production, "proof that we are fully committed to investing in this highly innovative field," he says.

Among thermosets, he says the company has developed a high purity epoxy with very low chlorine content to extend its

"Lekutherm" product range for electrical and electronics industries.

Dr. Walter Krauss, head of application technology for the coating raw materials and specialty products group, told the press conference that while Bayer remains one of the world's largest manufacturers of paint binders, past and future strategy does not include forward integration although the company will continue to acquire updated know-how on the manufacture, processing and application of paints.

On a virtually stagnant worldwide paint market (some 80 million tons of paints are used worldwide each year), Dr. Krauss says polyurethane paints are one of the few groups with good annual growth rates, with particularly good properties when used for coating plastics for automotive applications.

Dr. Krauss doesn't see any hope for successful on-line finishing of plastic and metal parts, despite the amount of effort currently being expended on the problem, as long as standard coating materials and methods are retained.

The situation would be different, he asserts, if flexible polyurethane top coat systems were used. With a drying temperature of approximately 100 degrees C, most of the plastics used in auto bodywork now could be used without their properties suffering due to the heat.

ON-LINE PAINTING LIMITED

On-line painting is as yet limited to a few exceptions such as polybutylene terephthalate bumpers on the Austin Maestro and Montego (standard finishes) or small passenger car series, such as the polyester bodies of the Renault Alpine and the new Espace.

Dr. Gunter Oertel, head of application technology for Bayer's polyurethanes group, says the company has developed some "Bayflex" easy release reaction injection molding systems since K '83 that permit up to 1,200 demoldings of lower mold halves with no application of release agent. Introduction of the systems in the US and Europe has boosted productivity by up to 60 percent with a cycle time of 90 seconds, he says.

Advances have also been made in the area of major appliances where use of automated foaming machinery from a Bayer subsidiary has cut demold times for refrigerators to 2.5 minutes. Foam systems have also been modified to prevent flashing when cabinets are filled and thermal conductivity of rigid polyurethane foam has been reduced by 10 to 15 percent, meaning that refrigerators consume even less energy though insulation thicknesses remain the same.

In the flexible foam product sector, Dr. Oertel says developments since K '83 have been concentrated on the new and promising field of high-resilient foam with high load-bearing capacity. Main thrust of the development work has been to simplify the production process for foam manufacturers "while paying particular attention to economic aspects."

With an eye on the fast-growing thermoplastic elastomers market, Bayer's rubber group has set up a separate business unit to cover all of its activities in the field.

Dr. Othmar Rosenthal, head of application

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technology for the group, says Bayer currently has two product groups that fall into the category — "Desmopan" polyurethane-based elastomers and "Lexaflex" cross-linked EPDM-polypropylene blends.

Though more than two decades old, the polyurethane product is experiencing a "renaissance," and "is well on its way to becoming the elastic material," he says, since its properties can be varied to make extremely elastic films as well as hard articles such as ski boots.

Hoechst officials told reporters at a "pre-K" briefing in Frankfurt that continued rationalization efforts in commodity plastics have led to a base on which the company believes it can build new core product areas. The company has in recent years cut back its high-density polyethylene capacity by 95,000 tons, sold off the 145,000-ton low-density PE business and discontinued polystyrene production with total capacity amounting to 440,000 tons.

Hoechst's West European HDPE capacity now totals some 480,000 tons annually (860,000 tons worldwide), while polypropylene capacity is 385,000 tons in West Europe (435,000 worldwide) and polyvinyl chloride, made only in West Europe, totals 240,000 tons per year.

Gottfried Kremer, head of Hoechst's plastics and waxes division says the company is "competitive" in its worldwide HDPE business and has been increasing its share in such specialty areas as films and large-volume, blow moldings and pipes. In polypropylene, he says Hoechst is participating in industry trends to more efficient catalysts together with adapted process engineering.

REINFORCED POLYPROPYLENE

Reinforced grades of PP qualify particularly as low-priced engineering resins and the Hoechst executive says "we are playing a decisive role in this development."

In PVC, Hoechst is a relatively small competitor, but the polymer is part of an integrated chloralkali system and is one of the raw materials for film production. The company is also set aside from much larger competitors by the wide range of grades it offers, with a high proportion of specialties produced by different processes.

Hoechst, too, plans to make engineering plastics a focal point of its activities over the next few years, following a worldwide trend to extending and diversifying polymer material toward compounds, blends and alloys.

As an example, the Hoechst executive cites a new material the company has just started to sample — a polyether ketone ("Hostatec") — that is processed at about 400 degrees C and can be used at temperatures up to 250 degrees.

Although it's expected the growth of the market for engineering plastics will be rapid, Mr. Kremer says the quality that the market requires will continue to rise.

As a result, he says Hoechst will seek cooperative arrangements with competitive companies wherever there are prospects of opening up new markets. The company concluded an agreement with 3M in the field of fluoropolymers in May of this year and is planning a project in the area of chlorinated polyethylene ("Hostapren") with DSM.

In terms of near-term capital spending, Mr. Kremer says a focal point will be the \$50 million expansion in fluoropolymer production at the company's Gendorf works and restructuring of the polypropylene production which is likely to require some millions of dollars in the course of several years.

Although the company has not detailed its spending plans for engineering resins, Mr. Kremer says Hoechst's program "will require large sums of money and will certainly

take more than a decade to complete."

In regard to polyacetal ("Hostaform"), rationalization and steps to improve quality are already underway and should lead to a slight increase in capacity. A decision is expected in 1987 on an important step toward expansion, Mr. Kremer says.

Looking at world markets for plastics, Dieter Cron, head of the plastics and waxes sales department, noted that world consumption of commodity plastics has risen from 4 million tons to 49 million tons since 1970, an annual growth of 5.5 percent.

In spite of the fact that growth prospects in general appear favorable, he says structural changes that have taken place indicate a no-growth situation for commodities in traditional markets. "With average growth rates of less than 2 percent over the next ten years, the share of the major industrial centers in world market consumption will show a marked decline," he says.

In Europe, traditional export surpluses are showing a sharp decline. Whereas exports of commodity plastics from European industry exceeded 1.85 million tons in 1983, it's expected the figure will have fallen by almost 50 percent in 1990 due to the rise of Canadian and Middle East production. At the same time, Mr. Cron says it is difficult to understand the stir created among West European producers last year over imports from Saudi Arabia.

"We have fairly reliable grounds for assuming that in 1985 no more than 40,000 tons of HDPE and 120,000 tons of LLDPE came to Western Europe. This compares with a total consumption of 1.9 million tons of HDPE and 4.4 million tons of LD/LLDPE, respectively," he says.

This year Hoechst expects imports from Saudi Arabia to amount to 80,000 tons of HDPE and 210,000 tons of LLDPE — "will be reason for the nervousness shown," the Hoechst executive says.

For the future, Mr. Cron says rapid growth, innovation and pioneering development will rest with the engineering resins. He expects consumption in West Europe, the US and Japan to more than double from last year's 1.4 million tons to 2.6 million tons in 1990. Leading the way, according to Hoechst, will be polyacetal, projected to grow from 500,000 tons last year to 880,000 tons in '90, and polycarbonate, increasing from 300,000 tons to 580,000 tons.

**Inspiration Sells
Utah Coal Unit**

Inspiration Resources Corporation has completed the sale of all of its remaining interest in a Utah coal property to Sunoco Energy Development Company, a subsidiary of Sun Company, Inc. IRC expects to report a \$13.25 million gain on the sale as income in the third quarter of 1986.

A subsidiary of IRC originally had and Sunoco an interest in the Ferron Canyon coal property in 1981. The sale of all of the IRC subsidiary's interest in the property solves a dispute concerning its development that arose in 1985.

Inspiration Resources Corporation, which had 1985 revenues of \$1.1 billion, is a diversified natural resources company with interests in products and services for agriculture and the mining of base and precious metals and coal.

Its subsidiaries include Terra Industries, Inc., Inspiration Consolidated Copper Company, Hudson Bay Mining and Smelting Co., Limited and Inspiration Coal Inc.

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COATINGS & PLASTICS

Polystyrene Continued from Page 3

prices were only partially successful. There was a move to raise prices by 4 cents per pound in January and February. By March, prices had advanced by an average of only 1 1/4 cents per pound, because many large-volume accounts refused to pay higher prices in light of lower raw material costs.

In June, styrene monomer producers announced a 2-cent-per-pound increase, and polystyrene makers were quick to follow with price increases of their own, moving high-impact and general purpose grades up an additional 2 to 3 cents per pound.

Despite the fact the styrene increase failed to hold, polystyrene producers describe the July increase as successful — impossible margins led them to walk away from customers who refused to accept the increase, until all accounts adopted it.

Recent changes in crude oil values brought on by OPEC's move to limit production by September of this year have, so far, had a real impact on perceived styrene values. The recently announced September styrene monomer price increases are expected to hold, and function as a catalyst for this primarily demand-driven increase, producers say.

GROWTH FORECAST

Earlier forecasts predicted 4 to 5 percent overall growth. By the second quarter, demand was perceived to be up by 6 to 8 percent over last year's levels. Summer demand for the resin was expected to maintain this level of growth as lower fuel costs were predicted to boost the number of driving vacations and hence demand for disposable polystyrene containers (CMR 6/3/86, pg. 30).

Second quarter demand levels exceeded even these projections, producers report, citing SPI year-to-date figures for June. Total demand (including the market for EPB and flame-resistant and other specialty grades) increased 8.1 percent from 2.04 billion pounds in 1985 to around 2.21 billion pounds.

Sources describe total demand for general purpose and impact molding and extrusion grades of solid polystyrene, including exports, as up by almost 11 percent overall during the first half of the year, moving from around 1.77 billion pounds to roughly 1.96 billion pounds.

Of this figure, individual demand for molding grades was up 10.2 percent to 696.7 million pounds and extrusion demand up 12.4 percent to 866.9 million pounds. Exports for straight polystyrene shot up 20.3 percent and those for rubber-modified grades up 40.3 percent.

Only the bead and compounding polystyrene segments, relatively small portions of the total market, declined. The market for EPB (used in thermal-insulation and in

polystyrene cups) fell by 5.6 percent, from 249 million pounds last year to around 235 million pounds, while compounding demand fell 8.1 percent to 242 million pounds.

Figuring largely in the increased demand for solid general purpose and impact grades were disposable packing, up 17.8 percent, overall packaging, up 7.8 percent, furniture and building up 44.5 percent and electronics, up 19.5 percent over June year-to-date levels in 1985.

While one source expects overall molding and extrusion demand to show growth of 9 to 10 percent this year, others feel that demand in the second half of the year will not match

PRICES TRENDLINES

WEEK ENDING SEPTEMBER 5, 1986

CHANGES/UP

Polyethylene (HD) up 4c. per lb.

Polypropylene up 3c. per lb.

CHANGES/DOWN

None

COATINGS INDEX

The Coatings & Plastics Index reflects the prices of 13 representative materials in this sector and the quantity of each produced in 1985.

Sept. 5, 1986	306.4
Aug. 29, 1986	306.4
Aug. 8, 1986	306.4
Sept. 9, 1986	306.4

Chemical Prices Start on Page 36

that in 1985, which they perceive as an all-time high. These sources expect overall demand growth to taper off somewhat, to around 6 to 8 percent.

To keep up with demand, capacity utilization has been high, currently estimated at 90 to 95 percent of a total capacity of between 4.2 billion to 4.3 billion pounds.

The price increase represents a move to regain profitability, which discounting and depressed raw material values had damaged. With market conditions as they are, producers are optimistic that the price hike will hold.

PRIME PIGMENTS

TITANIUM DIOXIDE — Following a move initiated by National Lead Industries in June (CMR, 6/30/86, pg. 27) and continued by E.I. du Pont de Nemours & Co. and the pigments division of SCM Corporation two weeks ago (CMR, 8/1/86, pg. 20), Holtra-

Continued on Page 52

COATING & PIGMENT IMPORTS: JUNE

CENSUS BUREAU REPORTS ON THE TOP PAINT MATERIALS.

	JUNE 1986	JUNE 1985	MAY 1986	MAY 1985
	QUANTITY	VALUE	QUANTITY	VALUE
Antimony oxide..... lbs.	3,482,861	2,851,789	2,787,099	1,794,370
Carbon black..... lbs.	6,536,395	2,489,051	5,284,949	1,822,760
Chroma colors..... lbs.				
Chroma oxide green..... lbs.	666,551	599,597	225,875	230,391
Molybdate orange..... lbs.	148,459	145,017	117,500	115,594
Yellow..... lbs.	380,557	283,083	209,240	142,145
Zinc Yellow..... lbs.	260,998	189,172	185,282	98,028
Cobalt Oxide..... lbs.	9,947	64,325	19,459	165,781
Cuprous Oxide..... lbs.	80,000	70,133	80,000	69,978
Iron blues..... lbs.	279,680	345,590	325,911	627,354
Iron oxides, hydroxides, nat'l..... lbs.	64,200	6,043	40,000	3,266
Synthetic..... lbs.				
Black..... lbs.	294,634	33,415	141,735	36,395
Red..... lbs.	879,704	245,139	1,190,524	373,557
Yellow..... lbs.	1,787,731	363,397	3,842,516	466,002
NBP..... lbs.	1,684,943	1,206,167	1,816,174	1,055,599
Litharge..... lbs.	1,403,600	29,275	1,369,913	223,788
Red Lead..... lbs.	44,800	9,020	29,000	17,650
Shades, bleached..... lbs.	207,517	172,174	85,593	94,665
Black butylene, other lacs..... lbs.	142,859	289,223	97,616	170,222
Titanium dioxide..... lbs.	238,377	335,850	24,844,573	16,908,893
Ultramarine blues..... lbs.	38,941,266	22,849,235	437,471	431,780
White lead, basic carbonates..... lbs.	885,145	821,671	1,187	5,159
Zinc Oxide (lead free)..... lbs.	5,451,145	1,756,429	5,229,370	2,866,985

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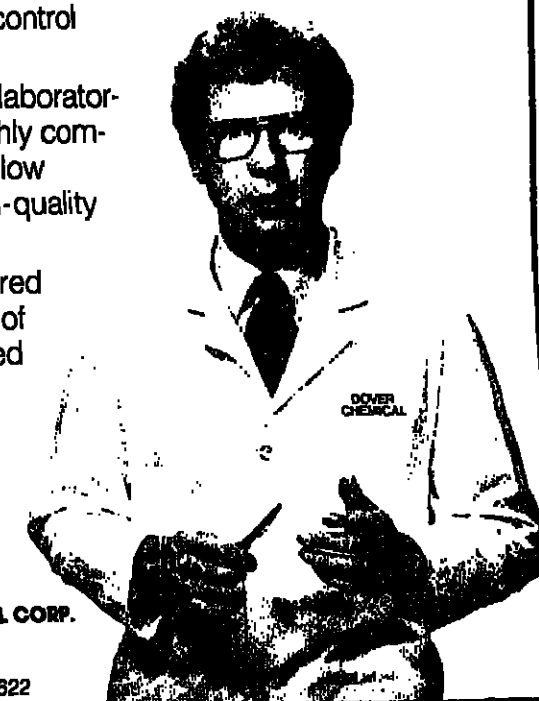
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grams, bgs., c.i. f.o.b.	lb.				
85 polygrams, bgs., c.i. f.o.b.	lb.	.86			
76 polygrams, bgs., c.i. f.o.b.	lb.	.78			
95 polygrams, bgs., c.i. f.o.b.	lb.	.77			
84 polygrams, bgs., c.i. f.o.b.	lb.	.79			
92 polygrams, bgs., c.i. f.o.b.	lb.	.87			
80 polygrams, bgs., c.i. f.o.b.	lb.	.93			
38 polygrams, bgs., l.i. f.o.b.	lb.	.80			
15 polygrams, bgs., l.i. f.o.b.	lb.	.85			
154 polygrams, bgs., l.i. f.o.b.	lb.	.90			
192 polygrams, bgs., l.i. f.o.b.	lb.	.95			
222 polygrams, bgs., l.i. f.o.b.	lb.	1.00			
251 polygrams, bgs., l.i. f.o.b.	lb.	1.05			
283 polygrams, bgs., l.i. f.o.b.	lb.	1.10			
315 polygrams, bgs., l.i. f.o.b.	lb.	1.15			
347 polygrams, bgs., l.i. f.o.b.	lb.	1.20			
379 polygrams, bgs., l.i. f.o.b.	lb.	1.25			
411 polygrams, bgs., l.i. f.o.b.	lb.	1.30			
444 polygrams, bgs., l.i. f.o.b.	lb.	1.35			
477 polygrams, bgs., l.i. f.o.b.	lb.	1.40			
lots, fr. acid	kg.	6.65			
cytarine, nat. refid. USP, CP 98%	tanks, divid.				
USP, CP nat. 96%, tanks, divid.	to	.87½			
Syn 98%, tanks divid	to	.83¼			
Syn 99.5%, tanks divid.	to	.91			
cymene (see Ammoniac acid)					
lycoryn glycosolate, 100 lb. tib.	klms	14.50			
f.o.b.	klms				
lycose acid (see Hydroxyalkalic acids)					
glyoxal 40% soln, bulk, tanks,	divd	lb.			
divd	lb.	.64½			
Grapefruit oil, Fla.	dms	lb.	2.75		
Calif. dms.	lb.	2.25			
Israel	lb.	2.25			
Grapheite, amorph. powd., bgs., dms.	ex whse	lb.		40	
cryst. 88-90%, powd., bgs., dms.	ex whse	lb.	30	.60	
Graphite, cryst., 90-92%, powd., bgs.	dms	lb.	.40	.75	
95-96% powd., bgs., dms.	ex whse	lb.	.60	.90	
Graphite, amorph., cryst., 97% end up,	powd., bgs., dms.	ex whse	lb.		
Graphite, flake, No. 1, 90-95%, bgs.	dms, ex whse	lb.	.80	1.20	
No. 2, 90-95%, bgs., dms.	ex whse	lb.	.65	.75	
No. 3, 90-95%, bgs., dms.	ex whse	lb.	.85	.75	
Grease (See Oil, Fats & Waxes market report)					
Cress oil (See Lard oil)					
Buescof, tech, 500-lb. drums, 24,000lb.	min. f.o.b. Wellington,				
Conswood of, dms.	lb.	2.70			
NOTE: Pulverized grades vary 10% higher					
Gum, gum, edible, bgs., c.i. f.o.b.	shipt. pl.	lb.	.50	.75	
indust., bgs., high viscosity, c.i.	same basis	lb.	.50	.85	
metacrin, dms.	lb.	8.00		8.25	
mentocryl (see Spruce oil).					
methylene leaves, lbs.		.65			
metaphane, indust., tanks, f.o.b. Beaumont,	Texas, gal.	1.07			
95% tanks, c.i. Houston,	Tex.	gal.	1.18		
metanolic acid, sym, tanks, f.o.b.		.65			
methylenecocut, sym, tanks, f.o.b.		.43¾			
methoxyphenyl, indust., tanks, tech.	dms, l.i. f.o.b. works	lb.	1.42		
methoxyphenyl, indust., gran. bgs.	c.i. l.i. works	lb.	.58		
gran. dms, c.i. l.i. works	lb.	.69			
tech. bgs., c.i. f.o.b. Houston,	lb.	.80			
powd., dms, c.i. l.i. works	lb.	.83			
mezone, indust., tanks, works	gal.	1.01		1.16	
95%, tanks, f.o.b. Houston,	gal.	1.12			
levand. typ, tanks, f.o.b. Houston,	gal.	.60			
xylol alcohol, mixed isomers,	tanks	lb.	.32		
Hexyl methacrylate, dms., c.i.	works	lb.	.76½		
hexylene glycol, f.o.b. Houston,	lb.	.60			
hydroxyacetate, USP, dms.; 25-lb. lots	or more, fr. acid	lb.	30.00		
homotripropyl hydrobenzoate, USP, 100-oz. lots, bott.	oz.	10.26		11.30	
homotripropyl hydrobenzoate, USP, 10-150 oz. lot, bottles	oz.	8.76		10.70	
homotripropyl hydride, bottled	oz.	.26		.28	
hydrazine hydrate, 85%, l.i. fr.	acid	lb.	1.54		
fr. acid	lb.	1.81			
hydroxy acid, purified, 67%-57%	ib.	7.50			
ib.	lb.				
hydroxyl alcohol, tech. solid	dms, c.i. f.o.b. zone 1	lb.	.85		
ib.	lb.	.90			
hydroxy acid, 45%, dms, c.i. f.o.b.	lb.	.80			
ib.	lb.	.84			
hydroxy acid, anhyd. (see Hydrogen chloride)					

An Index of weekly chemical market reports is on the back cover.

AL	
R 5, 1986	
240	.260
270	.290
25	-
28	-
31	-
4050	-
210	-
240	-
30	.30%
32	.34%
50	12.50
50	12.50
00	-
38	-
31	-
24	-
.00	100.00
.00	-
.25	9.75
.00	140.00
.95	2.05
1.75	1.90
1.55	1.85
1.10	-
1.30	1.45
32.75	-
40.75	-
25.85	-
48.00	-
7.00	7.25
1.00	-
1.45	-
1.365	-
3.70	1.05
.95	.78
.72	-
.32	-
.74	-
.78	-
.75	-
.74	-
.65	-
1.10	-
.79 1/2	.83
34.00	-
38.00	35.00
1.00	-
7.93	-
3.71	-
7.50	-

NOTE: A unit-ton is 1 percent of 2,000 pounds of the basic constituent or other standard of the material. The percentage figure of the basic constituent multiplied by the unit-ton price shown in Chemical Market Reporter gives the price of 2,000 pounds of the material.

o-/ortho
ord./ordinary
o./ounce
P/phosphorus
p./para
Pac./Pacific
p./proof
phos./phosphate
photo./photographic
pkgs./packages
powd./powdered
precip./precipitated
prod./producer
pt./pulp
purif./purified
redist./redistilled
refid./refined
refry./refinery
reus./reused
ret./retail
SD/specially formulated
s.d./single distilled
SE/Southeast
sc./seasonary
scc./seconds
sp./specific gravity
shp./shipment
sols./solution
std./standard
syn./synthetic
tanks./railroad tankcars
tech./technical
tar./taritory
I.I./I produced
ton./refers to short ton
of 2,000 pounds
TV./television
vol./voluntary
w./w/ allowance
L.W./lightweight
USP./United States
Patent Office
vis./viscosity
Vist./Vishay material
A. Patters
W/West
w/w./warehouse
w./w/ water-tight

[illegible]

Carbon black, low structure, bulk, c.i. works	240	260
bags, c.i. works	270	280
Intermediate-super-abrasion (SFA)	25	—
bgs, c.i. works	28	—
super-abrasion (SAF), bulk, c.i., works	31	—
bgs, c.i. works	4050	—
semi-elastic (SFAF), bulk, c.i., works	210	—
bgs, c.i. works	240	—
Carbon black, thermal, medium, bgs, c.i. works	30	30
bulk, c.i. works	32	34
Carbon black of, barge, l.o.b. Gulf refineries	1050	1250
l.o.b. Gulf refineries	1050	1250
Carbon disulfide, l.o.b. works	4200	—
Carbon tetrachloride, CFC consumers, dms., c.i., Int. aff.	35	—
tech. dms., c.i., Int. aff.	31	—
tank transport (Int. aff.)	—	—
Int. aff.	24	—
Carboxymethyl cellulose (see CMC)	—	—
Cardamom oil, NF, bgs	75.00	100.00
Cardamom seed, 40% chlorine, green, Guangdong, bgs	6.25	9.75
Carmine, No. 40, NF, bulk, 100-lb. lots or more, dtd	135.00	140.00
Carnauba wax, Polysar, No. 1, yellow, low bgs, tons, lots	1.95	2.05
Ceara, No. 1, yellow, bgs, tons, lots	1.75	1.90
North Country, No. 2, refined, bgs, tons	1.55	1.85
Carnauba wax, North Country No. 3, centrifuges, bgs, tons, lots	1.10	—
North Country, No. 3, refined, bgs, tons	1.30	1.40
Powdered carnauba wax, 20 to 100 mesh, 20c per lb., higher	—	—
l-carotene, vegetable oil, semi-solid suspension, per gram, 33 lbs. or more, lb.	32.75	—
l-carotene, liq. in vegetable oil, 500,000 U units per gram, 33 lbs. or more, lb.	40.75	—
l-carotene dry, bgs, 100 gms. 1000 U units per gram, 50 lbs. or more, cns, lb.	26.85	—
d-carotene, 25-lb. dms., syn.	48.00	—
l-carotene	7.00	7.00
Casare, Casare, bgs, c.i.	1.00	—
Casellin, imp. acid-pracp., grd., 30-mesh, Australian, edible, same basis, c.i.	1.45	—
Australian, indust., same basis, c.i.	1.355	—
Cassella acid, 303 mol. wt., dms., Int. aff., 100% basis	3.70	—
Casela, Kargini "A" bgs95	1.00
Caster oil, raw, No. 1, Braz. taxes, USP 5-9 dms.	32	—
refid. dtd, 5-9 dms.	78	—
blend, 5-9 dms.	75	—
dehydrated, bottled, tanks	74	—
Castor oil, unbodded, tanks	85	—
Castor oil, adds dehydrated, dms., lb.	797	—
Castor pomace, bgs, c.i.	164.00	—
Cat, Miami, Fla., cns, ton	18.00	35.00
Catamount, nat. cns.	11.00	—
Catechol, CFC 45-lb. dms., c.i.	7.93	—
tech. bgs, l.i., same basis	3.71	—
Caulis polian (see Polian, caustic)	—	—
Casac soda (see Soda, caustic)	—	—
Cedar oil, dms.	17.50	—
Cedarwood oil, Texas, dms., cns.	3.50	4.00
Virginia	3.70	4.25
Cedrol, prime dms.	6.25	5.30
Cedrol, bgs, c.i.	4.25	5.30
Celery seed, Indian, bgs	48	—
Celery seed oil	50.00	53.00
Cellulose acetate, powd., bgs, l.i., 100% acetic, 100% basis	1.30	—
Cellulose acetate butyrate, powd., 17% butyl content, bgs, l.i., dtd, c.i.	1.75	—
50% butyl content, bgs, dtd, c.i.	1.50	—
50% butyl content, bgs, dtd, c.i.	1.81	—
50% butyl content, bgs, dtd, c.i.	1.83	—
Cellulose gum, pure, high vis., bgs, 24.00-lb. lots or more, white, l.o.b. Hovepel, Va.	1.60	1.60
std., low or medium vis., bgs, c.i., l.o.b. Hovepel, Va.	1.60	1.60
Cerium concentrate, 50% CeO ₂ , bgs, c.i.	1.35	—
Cerium concentrate, 50% CeO ₂ , works	5.40	—
77% CeO ₂ , dms., works	4.20	—
Cerium oxide, optical grade, bgs, 60-lb. lots or more, white, l.o.b. Hovepel, Va.	1.85	1.85
Chalk (see Calcium carbonate)	—	—
Chamomile flowers, Hungarian, cs., lb.	4.25	4.40
Roman, cs.	4.50	—
Byronic, whole, cs.	2.70	—
Chamomile oil, blue, Egyptian	545.00	—
blue, Hungarian	370.80	—
Chenopodium oil, NF, cns.	15.00	—
Chitosan acid dry, l.i., Int. aff.	19.50	—
Chiles (see Pepper, red)	—	—
Chloride anhydride, tech. dms., l.i., works	1.30	—
Chlorinated paraffin, 40% chlorine, 50% butyl, dms., Zone 145	—
50% chlorine, same basis46	—
80% chlorine, same basis46 1/2	—
70% chlorine, resinous, 50-lb. bgs, c.i., dtd, Zone 149	—

WEEK ENDING SEPTEMBER 5, 1986

Chlorinated paraffin, Zone 2 prices are 1c. per lb. higher and Zone 3 prices are 2c. per lb. higher and t.i. drum prices are 6c. per lb. higher.

and spec. at. figs.		
Chlorobenzene, 50, 15, 20 cps., bgs.	lb.	1.66
40 cps. bgs., l.l., divd.	lb.	1.92
125 cpa. bgs., l.l., divd.	lb.	2.80
300 cps. bgs., l.l., divd.	lb.	2.75
Chlorine, tanks, single units works, f.o.b. fr. equald.	ton	195.00 200.00
Chloroacetic acid, mono, high purity, falcic, 93% bulk f.o.	lb.	.56
2-Chloro-4-aminotoluene, tech., liq., dms., c.l., f.o.b. works.	lb.	1.88
o-Chloroaniline, liquid, dms., c.l., f.o.b. works.	lb.	1.63
tanks, same basis.	lb.	1.55
p-Chloroaniline, solid, c.l., f.o.b. l.l.	lb.	1.70
thike, dms., c.l., same basis.	lb.	2.00
o-Chlorobenzaldehyde, dms., f.o.	lb.	2.45
works.	lb.	
p-Chlorobenzaldehyde, dms., 2,000 lbs. or more, works.	lb.	3.94 3.65
o-Chlorobenzaldehyde, dms., 2,000 lbs. or more, works.	lb.	3.93
o-Chlorobenzoic acid, dms., 500-lb. lots or more, works.	lb.	1.89 2.25
Chloroform, tech. tanks, dist. divd.	lb.	.34%
for consumers, tanks, dist. divd.	lb.	.34%
NF tanks, mlt., consumer, 4,000 gals. divd.	lb.	.35%
2-Chloro-4-nitroaniline, paste, commodity basis, dms., f.o.	lb.	3.08
l.l., same basis.	lb.	3.15
powd., same basis.	lb.	
4-Chloro-2-nitroaniline, paste, 172.5 mol. wt., commodity basis, dms., f.o.	lb.	2.25
l.l., same basis.	lb.	2.70
powd., same basis.	lb.	
o-Chlorophenol, dms., c.l., f.r. equald.	lb.	2.00 2.40
p-Chlorophenol, dms., c.l., f.r. equald.	lb.	1.25 1.70
Chloropin, coml., 1,500-lb. cys., l.l., f.o.b. works.	lb.	1.25
Chlorosulfonic acid, tanks, f.r. equald.	lb.	.18%
p-Chlorotoluene, tech., tanks, works.	lb.	1.00
Chloroacetal, dry, 40,000-000 units	gm.	24.00
Choline bitartrate, cryst., 98% min., 50 kilo dms., f.o.b. Springfield, Mo.	lb.	.690
Choline chloride, feed grade, 98% aqueous, t.c., f.r., divd. E. of Rockies.	lb.	.28
80% dry supplement.	lb.	.39
Choline chloride, feed grade, 98% aqueous, bulk hopper cars.	lb.	.39
bgs., 50,000 lbs. min.	lb.	.40
Choline chloride, pharmaceutical, 50 kilo, lots, f.o.b. Springfield, Mo.	lb.	5.00
Choline hydrogen citrate, 98% min., 50 kilo lots, f.o.b. Springfield, Mo.	lb.	6.00
Chromic green, CP, same basis, divd. E. of Rockies.	lb.	1.88
light, bgs., same basis.	lb.	.70
medium, bgs., same basis.	lb.	1.72
acid, 55% CP, same basis.	lb.	1.74
Chromic orange, CP, bgs., divd. E. of Rockies.	lb.	.83 .8
Chromic yellow CP bgs., divd. E. of Rockies.	lb.	1.09 1.1
Chromic acid, 99%+, falcic dms., c.l., f.r. equald.	lb.	1.18
chrome basis.	lb.	1.25
Chromium acetate, 50%, 75%, dms., 500-2,000-lb. lots, works.	lb.	.10
Chromium fluoride, dms., f.r.	lb.	.81
works.	lb.	.85
Chromium nitrate, dms., f.o.b.	lb.	1.45
10% metal soln., 500-lb. dms. same basis.	lb.	.74
Chromium oxide, hydrated, 50% pure, bgs., c.l.	lb.	5.50
pure, bgs., c.l.	lb.	1.90 2.00
Cinnamic aldehyde, 25-lb. dms.	lb.	1.05
Cinnamic aldehyde, 25-lb. dms.	lb.	1.85
Cinnamic acid, 25-lb. dms.	lb.	1.05 1.1
Cinnamon H ₂ O.	lb.	1.85
Cinnamon bark oil, bats.	lb.	88.00 95
Cinnamon leaf oil, bats.	lb.	2.80
Citral, net, dms.	lb.	4.50
Citric acid, 50% bgs., f.o.b.	lb.	3.18
Citric acid, USP, hydrous, gran., 250-lb. dms., f.o.	lb.	1.19
Citric acid, USP, acid, gran. 250-lb. dms., f.o.	lb.	.86
Citric acid, 50% del.	lb.	
Citric acid, yellow, powder, bgs., higher than 50%.	lb.	2.12 2.40
Citronella oil, Cayton, dms.	lb.	4.50
Java, dms.	lb.	3.80
Citronellal, 25-lb. cans	lb.	3.85
Citronellol, 25-lb. cans	lb.	3.85
Citronellol, 25-lb. cans	lb.	3.85
Citronellol, 25-lb. cans	lb.	3.85
Citronellol, 25-lb. cans	lb.	3.85
Civet, art., bats.	lb.	20.00
nat.	lb.	500.00
Clay ball, dsm. air floated, bgs., c.l.	ton	49.00
Clay, ball, crushed, moisture-repelling, bulk, c.l., Tenn.	ton	24.00
Clay China (see Rock)		
Cleaners, naphtha, 40° flash tanks, New Jersey or New York, divd.	gal.	1.40
Clove leaf oil Indonesian, reg. dms.	lb.	2.55
leaves, reg. dms.	lb.	4.50
Clove bud oil, reg. dms.	lb.	4.20
Cloves, Brazil	lb.	2.20
Zanzibar	lb.	2.80

[illegible]

		Cube root, powd., 5% rotenone, basic, 50-lb. bgs., t.l. works	.60	-
1.25	-	Cumene, bulk, contract, f.o.b. works	.14	.14
.84	-	Cumin seed, Indian, bulk, f.o.b. works	.82	.85
60.00	255.00	Cyranuric acid, dims., c.l., t.l. fr. equald.	1.16	1.37
60.00	-	Cyclanem aldehyd., 50% min. aldehyde content, dims.	4.85	-
5.00	-	98.5% dms.	7.35	9.20
68.81	4.25	90-92% dms.	7.65	-
6.81	8.16	Cyclohexane, bulk, barges, w.e.	92450	934
4.15	-	Cyclohexanoid tech., tanks, f.o.b. works	.52	.68
8.20	10.55	Cyclohexanone tech., tanks, f.o.b. tanks, divd. E.	.55 1/2	.58 1/2
2.06	-	Cyclohexylamine, tech., tanks, works	.65	-
11.70	-			
2.06	-			
2.74	3.45			
9.51	-			
9.78	-			
1.35	-			
.38 1/2	-			
2.81	3.54			
4.56	6.02			
2.16	-			
.40	.45			
2.10	-			
(reput.)	-			
.52	.58			
.54	.53			
6.50	-			
10.00	-			
40.00	-			
75.00	-			
6.50	7.25			
1.75	-			
3.60	-			
71	.74			
1.34	-			
108.30	-			
108.30	-			
.90	-			
2.30	2.62			
.82	-			
6.50	-			
.62 1/2	-			
1.19	-			
.43 1/4	-			
.97	-			
1.21	-			
1.19	1.20			
1.15	-			
2.52	-			
46.45	-			
60.00	-			
75.10	-			
22.00	28.00			
.36	-			
.38	.37			
(reput.)	-			
.13 1/4	.14			
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(see market report.)	-			
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	Diethyl carbonate, sec. (see paraffins)	
	Diethyl carbonates, tankwagons	
	E. f.o.b. works .. . lb.	1.40
	Diethyl ethanolamine, CP dms., c.i., dvd .. . lb.	1.18
	tanks, dvd .. . lb.	1.10
	Diethyl ethanolamine, tanks, f.o.b. lower works .. . lb.	1.80
	Diethyl oxalate, dms., c.i., f.o.b. works .. . lb.	1.80
	Diethyl phthalate, tanks, f.o.b. .. . lb.	.62 .65
	odorless cosmetic grades, t.l., works .. . lb.	.97% .59
	Diethyl sulfato, tanks, frt. alid. E. lb.	
	Diethyl thiourea, dms., c.i., t.l., works .. . lb.	2.48
	D-2-ethylene glycol diacetate (Dacetyl) Diethyl tartrate, 95-97% min. meta isomer dms., t.l., f.o.b. works .. . lb.	2.78
	N,N-Diethyl-m-tolidine, tech. liq., dms., t.l., f.o.b. works .. . lb.	3.18
	tanks, same basis .. . lb.	3.10
	Diethylenamine, dms., c.i., dvd .. . lb.	1.15
	tanks, same basis .. . lb.	1.83
	N,N-Diethylenamine, dms., c.i., t.l., f.o.b. works .. . lb.	1.02
	tanks same basis .. . lb.	.78
	Diethylbenzene, tanks, f.o.b. works lb.	1.96
	Di-2-ethoxyphthalate (see Diocyl acetate)	
	Di-2-ethoxyphthalic acid (see Diocyl acids)	
	Diethylene glycol monobutyl ether, dms., c.i., frt. alid. E. lb.	.85
	tanks, frt. alid. E. lb.	.57
	Diethylene glycol monoethyl ether, dms., c.i., frt. alid. E. lb.	.84
	tanks, frt. alid. E. lb.	.56
	Diethylene glycol monomethyl ether, dms., c.i., frt. alid. E. lb.	.82
	tanks, frt. alid. E. lb.	.54
	Diethylene glycol monobutyl ether ac- etate dms., c.i., dvd. E. lb.	.80
	tanks, dvd. E. lb.	.76
	Diethylene glycol monoethyl ether ac- etate, dms., c.i., frt. alid. E. lb.	.80
	tanks, frt. alid. E. lb.	.72
	Diethylenetriamine, tanks, f.o.b. works .. . lb.	1.60 1.61
	Diethylenetriamine pentaacetic acid, potassium salt solution tanks - cars; tankcarcs, frt.- equivalized .. . lb.	.45
	Diglyoxin, USP imp. lots .. . gram	280
	Diglycol laurate, dms., ton lots .. . lb.	82
	Diphenyl ether, t.l., f.o.b. works .. . lb.	.10
	Dihydroxide sulfate, dms., works .. . lb.	1.10 1.25
	Dihydroxypropylene sulfonate, bulk lio., works .. . lb.	48.00
	Diiodoxyacetylene, 50-100 lots, works .. . lb.	40.00
	Di-isobutyl phthalate, tanks, dvd. E. lb.	.50
	Di-isobutyl phthalate tanks, dvd. E. lb.	.55 .57
	Di-isobutyrene, tanks, f.o.b. Hous- ton .. . lb.	.37
	Diisododecyl phthalate, tanks, dvd. E. lb.	.39%
	Diisononyl phthalate, tanks, dvd. E. lb.	.41
	Di-isooctyl azelate, tanks, dvd. E. lb.	.90
	Di-isooctyl phthalate, tanks, dvd. E. lb.	.41
	Di-isopropylamine, dms., c.i., t.l., tanks, same basis .. . lb.	.68%
	Di-isopropylamine, c.i., t.dvd. .. . lb.	.58%
	tanks, same basis .. . lb.	1.17
	Diisopropylamine, c.i., t.dvd. .. . lb.	1.09
	Diisopropylamine, dms., c.i., t.l., f.o.b. works .. . lb.	1.63
	Diisovaleryl chloride, tanks, dvd. E. lb.	1.89
	Diisovaleryl chloride, tanks, dvd. E. lb.	1.90
	Dimethyl benzoyl carbonyl acetate, E. dms. .. . lb.	6.65
	Dimethyl carbonatone, dms., c.i., f.o.b. works .. . lb.	.90
	Dimethyl dichlorovinyl phosphate, 55- 60% dms., f.o.b. works .. . lb.	1.90 1.95
	Dimethyl dicloroformate, tanks, dvd. E. lb.	
	Dimethyl ethanolamine, anhyd. dms., c.i., dvd. E. lb.	1.16 1.11
	tanks, dvd. E. lb.	1.07 1.01
	Dimethyl ether, aerosol grade, tanks, frt. alid. E. lb.	.38
	Dimethyl phthalate, tanks, f.o.b. works .. . lb.	.65
	Dimethyl sebacate, tanks, f.o.b. works .. . lb.	2.28 2.15
	Dimethyl sulfato, frt. dms., c.i., f.o.b. works .. . lb.	.67
	tanks .. . lb.	.46
	Dimethyl sulfoxide, tanks, works .. . lb.	1.29 1.14
	Dimethyl sulfoxide, tanks, frt. alid. E. lb.	.78
	Dimethyl succinate, bulk f.o.b. .. . lb.	.87%
	Dimethylvalene, 25% solns, tanks, frt. equid., 100% basis .. . lb.	.65%
	40% soln., tanks, frt. equid. .. . lb.	.65%
	anhyd., tanks, frt. equid. .. . lb.	1.03
	N,N-Dimethylamine, t.l., f.o.b. .. . lb.	1.11
	LI dms. .. . lb.	
	N,N-Dimethylmethylamine, dms., c.i., t.l., f.o.b. works .. . lb.	.57
	tanks, same basis .. . lb.	.49
	2,4-Dinitrophenol, tone-lots, f.o.b. .. . lb.	1.22
	Dinitrobenzidine, grade 1, tanks, frt. alid. E. f.o.b. Houston .. . lb.	5.20
	2,4-Dinitrochlorobenzene, crystallizing at 47° F., t.l., f.o.b. Chenot N.C. .. . lb.	.96
	2,4-Dinitrophenol, 2nd grade, f.o.b. Charlotte, N.C. .. . lb.	1.36
	Dinitrotoluene, mix., tech. f.o.b. works .. . lb.	.20
	2,4-Dinitrotoluene, dms., works .. . lb.	1.25
	tanks, works .. . lb.	1.20
	Diocyl adipate, tanks, frt. alid. E. lb.	.65
	Diocyl azelate, tanks, frt. alid. E. lb.	.90
	Diocyl azelate, tanks, dvd. E. lb.	.40
	Diocyl benzoate, tanks, frt. alid. E. lb.	.65
	Diocyl sebacate, 95%, tanks, f.o.b. works .. . lb.	1.25
	1,1, same basis .. . lb.	1.21
	Dipentamethylol, bps., c.i., t.l., dvd. E. lb.	1.64
	Dipentan steam-dist. tanks, frt. alid. E. lb.	.25
	Dist. tanks, frt. alid. E. lb.	.25
	Dist. tanks, frt. alid. E. lb.	.25
	Diethylamine hydrochloride, USP grade, dom., 1,000-400 lbs. drums .. . lb.	20.00
	Diethylamine hydrochloride, USP grade, dom., 1,000-400 lbs. drums .. . lb.	20.00
	Diethylamine, 99.9%, dms., c.i., t.l., works .. . lb.	.74

Diphenyl oxide, each grade, tanks, lb.	1.11
Ophenyl red, flake, tanks, lb.	1.25
works, frt. equald., lb.	1.00
mohen, tanks, works,	
oyleated, flake, bgs., 11, f.o.b. works,	7.68
Diphenylphosphine, bgs., 11, frt. acid, lb.	2.52
Diphenylhydantoin-sodium USP,	
polymeric, 4,4-di-tocoyacetate, pmcment, bulk, c1, min. frt. acid, lb.	.91
Dipropylene glycol, tanks, frt. acid, lb.	45
Dipropylene glycol monomethyl ether, frt. acid, dlv., divided, lb.	54
tanks, same basis, lb.	46
Dio-xytoluenes, powd., dms., f.f., frt. acid, lb.	2.92
Dio-xytoluenes, lachl. solid dms., f.f., frt. acid, lb.	3.11
Dodecyl phthalate, tanks, dlv., lb.	60
Dodecyl phthalate, tanks, dlv., lb.	.59
Durexolamine, 100% basis, tanks dms., lb.	2.75
dms., 100% basis, lb.	3.00
1-Dodecanol syn. tanks, f.o.b., lb.	.767
Dodecyl succinic anhydride, tanks, c.1, 11, dlv., lb.	.88
Dodecylsuccinate (see Diethylene Alkylate), Dodecylolamine, tanks, min. frt. acid, E, lb.	48
Dyes, coaltar, certified colors for food, dyes and cosmetics, 100-lb. lots and over, frt. prepaid or collect, Brw.F.D.C. No. 1, lb.	21.20
No. 2, lb.	22.28
No. 3, lb.	23.15
Fenn.F.D.C. No. 3, lb.	49.50
No. 4, lb.	65.00
Vetco's F.D.C. No. 5, lb.	24.5
No. 6, lb.	7.45
No. 7, lb.	6.45
Dyes, coaltar, certified colors for drugs and cosmetics. 100-lb. lots divd.	
Green D&C. No. 5, lb.	38.50
No. 6, lb.	47.80
Red D&C. No. 4, lb.	18.85
No. 17, lb.	11.00
No. 19, lb.	39.25
Ino. 22, lb.	12.45
No. 28, lb.	59.95
No. 31, lb.	48.91
Yellow D&C. No. 7, lb.	21.90
No. 8, lb.	20.55
No. 40, lb.	48.90
No. 11, lb.	35.25
Dyes, coaltar, for general use in cloth and paper dyeing by Color Index Name, f.o.b. works	
ABK I Blue black ex. conc., lb.	5.75
Ae B 99 Blue Bz, lb.	5.40
AB 64 Azure Blue SAP 150%, lb.	19.85
AB 63 Alizarine Br. Cy G, lb.	14.03
AB 113 Navy Sl, lb.	6.55
AB 16 Green 2G 33%, lb.	22.12
AO 71, lb.	3.72
AO 80 E Cr. Conc., lb.	4.00
AO 10 Wood O Cr., lb.	4.30
AO 74 Heitzelized Or GNA, lb.	6.15
AR 29, lb.	5.13
AR Heatstable 133%, lb.	8.85
AR 18 Scarlet 4R Conc., lb.	5.45
AR 188 Fast Red A Cr., lb.	6.85
AR 151 Stn Red 3B Conc., lb.	4.50
AV 49 Azine Conc., lb.	9.75
AY 17 Fast Light Yal 2G, lb.	12.22
B 14 Basic Brown R Ex. Conc., lb.	5.60
B 61 Zinc Phos., lb.	4.42
B 94 Manganese Crystall., lb.	9.55
BV 100 Violet Crystals, lb.	6.90
BV 100 Manganese B Ex., lb.	10.95
BY 28m Yellow SFA 150%, lb.	10.10
BD 139 Super BG Conc., lb.	4.62
C 2 Conc. 300%, lb.	12.25
DB Marmine G Conc., lb.	9.45
DB 22 Fast Black GR, lb.	2.85
Fast Black GR 150%, lb.	4.20
DB 20 Reatin Fast Brown BRNED 200%, lb.	
DO 20 Reatin Fast Green GL, lb.	7.23
DR 24 EX. Conc., lb.	9.15
DR 31 Brilliant Red 12B Conc., lb.	7.08
DR 50 Fast Red BBLN, lb.	6.18
DR 51 Fast Red BBLP, lb.	6.18
DR 251 Fast Scarlet AV, lb.	6.86
DR 102 Fast Scarlet AV, lb.	8.25
NCS. Conc. 150%, lb.	11.25
DY 14 Brilliant Paper Yell 3GX 120%, lb.	2.47
Brilliant Paper Yell 3GX Lq., lb.	4.69
DY 11 Stillbene Yellow GA, lb.	1.76
G 2 Conc., lb.	3.03
DY 41 Fast Yellow HGL Conc., lb.	
DY 22 Reatin Fast Yellow LSG, lb.	8.75
DY 24 Reatin BA, lb.	14.40
DY 81 Reatin REL 200%, lb.	40.00
DY 13 Yellow R, lb.	21.00
DY 64 Yellow SG, lb.	3.66
DY 3 Orange GA, lb.	6.84
DY 1 Orange CB, lb.	4.91
DY 14RN Paste, lb.	7.86
DY 28 Bordeaux SV 200%, lb.	17.26
DY 102 21 Blue BGLF, lb.	17.77
DS 61 100% Blue GFDA 300%, lb.	10.05
50% White, lb.	22.80
VOT Jade Green Double Paste, lb.	4.10
Y 26 Olive TA Paste, lb.	5.60
Y 26 Olive TA Paste, lb.	5.86

Epinephrine base, syn., USP, bsp.	100 granules	gram	.60	
Epovetresin, liquid, bulk tanks, divd	lb.		1.31	14.
Scod, bgs, 11, frt	lb.		1.28	14.
Epstein salt (see Magnesium sulfate)				
Ethylalcohol, acid, powder, gran, 100 lb.	lbs.			
dms., 11, or mixed 11, f.o.b.	works		4.10	41.
Ester gum, gum resin type, dms, c, l.				
divd	lb.		1.31	14.
Memphis, N.C., Ohio, St.				
Louis, St. Paul, Va., W. Va.	lb.		.75	
Ester gum, wood alcohol type, dms, c, l.				
syn. basis	lb.		.43	
Ethyl acetate, syn., 85-98%, tanks,				
divd	lb.		.41	
99%, tanks, divd.	lb.		.41	
Ethylacetatechloride dms, c, l, divd	g.		1.13	
Ethylalcohol, acid, powder, gran, 100 lb.	lbs.		1.05	
Ethylacrylate, tanks, frt, aq.	lb.		.66	
Ethyl alcohol, syn., 190 p.p., USP tax				
free, tanks, divd	gal.		1.55	
Ethyl alcohol, anhydrous, 200 p.p., tanks,				
than 1500 p.p. tax free.	gal.		1.55	
Ethyl alcohol, fermentation, tanks,				
100 works	gal.		1.06	11.
Phenylalcohol, 100 p.p., tanks, 100				
Ethyl alcohol, denat. (see Denatured alcohol, ethyl)				
Ethylaluminumchloride, NF (see Benzocaine)				
Ethylbenzene, dms	lb.		1.35	
Ethyl bromide, tech., 98%, dms., c, l.				
divd	lb.		.76	
Ethylbutylate, dms	lb.		1.35	13.
Ethyl cellosolve, standard vis., 7 cps	bgs, 11, frt	equid	E	
standard vis., 10, 20, 45, 100 cps.				
11, frt	equid	E	4.17	41.
medium vis., 50, 100 cps, 11, frt				
equid	E		4.25	
USP vis., 7 cps bgs, 11, frt	equid	E	4.58	
15P, 10, 20, 45, 100 cps, 11, frt				
equid	E		4.59	41.
VSP (medium) 50, 100, 200 cps, 11, frt				
equid	E		4.51	
Ethyl cellosolve, 11, cyc., frt, aq.	lb.		21	
11, frt, aq.	lb.		24	
Ethyl cellosolve, tech., 98%, tanks,				
divd	lb.		1.13	
tanks, divd	lb.		1.15	
Ethyl ether, refined, tanks, 100 lb.			4.25	41.
Ethyl ether, crude, tanks, 100 lb.			4.25	41.
2-Ethylhexanoic acid dms, c, l, divd	lb.		.63	
divd	lb.		.67	
2-Ethylhexyl alcohol, straight or				
mixed, tanks, 11, frt, aq.	lb.		79.5	
2-Ethylhexyl acrylate, tanks, aq.	lb.		35	
Ethylhexyl chloride, tanks, aq.	lb.		6.25	
Ethylhexyl ether, 100 p.p., tanks,				
divd	lb.		10.50	
Ethyl lauryl acetate, syn., 65-90%				
divd	lb.		10.85	
Ethyl methacrylate, tanks, frt,				
equid	lb.		1.06	
n-Ethyl morpholine, dms., 11, frt				
divd	lb.		2.00	
tanks, same basis.	lb.		1.92	
n-Ethyl-naphthylamine, dms.,				
works	lb.		1.04	
Ethyl acetate (see Diethyl cellosolve)				
Ethylparaffin (see Paraffin, ethyl)				
Ethyl salicylate (see Ethyl salicylate)				
Ethyl silicate, 40's available SIC,				
dms, 11, c, l, frt	lb.		1.45	14.
tanks, 10, works	lb.		1.39	
N-Ethyl-nitroethanol, tank, liq., dms.				
c, l, frt	lb.		3.18	
tanks, same basis	lb.		3.05	
N-Ethyl-nitroethanol, dms.				
varian 100 lb. dms., 500 lbs. or				
25 lb. dms., 500 lbs. or			13.50	
100 lb. dms. (see Mono- and Di-)			13.75	
Ethylamine, dms., c, l, f.o.b.			14.00	14.
works	lb.		1.60	
Ethylamine, dms., c, l, f.o.b.			1.60	
works	lb.		1.58	
Ethylbenzene, bulk, f.o.b., Houston,				
Tex.	lb.		.22	
Ethylene, contract, divd.				
Ethylene, contract, divd.	lb.		18.00	18.
Ethylenechloride, 99%, tanks, f.o.b.				
works	lb.		1.30	13.
Ethylenechloride ethylenedichloride				
Ethylenechloride ethylenedichloride				
tanks, 11, c, l, frt	lb.		7.60	76.
frt, aq.	lb.		.36	
Ethylene dibromide dms., c, l, frt,				
equid	lb.		.32	
tanks, 11, frt	lb.		.38	
Ethylene dichloride, tanks, f.o.b.				
works	lb.		.17	
Ethylene glycol, indust., tanks, frt				
divd	lb.		.31	
Ethylene glycol, monobutyl ether,				
tanks, divd	lb.		.41	
Ethylene glycol monomethyl ether,				
tanks, divd	lb.		.61	
Ethylene glycol monomethyl ether,				
tanks, divd	lb.		.34	
Ethylene glycol monobutyl ether so-				
ciate, tanks, frt, aq.	lb.		.64	
Ethylene glycol monomethyl ether so-				
ciate, tanks, frt, aq.	lb.		.65	
Ethylene glycol monomethyl ether so-				
ciate, tanks, frt, aq.	lb.		.43	
Ethylene glycol, tech. f.o.b.				
Ethylene trichloride (see Trichloroethylene)				
Eucalyptol, NF, dms., Portuguese				
acid, 10-12%, tanks, 100 lb.	lb.		8.50	
NF, rectified, 80-85%, dms	lb.		8.25	
Eugenol, USP, dms.	lb.		7.55	

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Formalol, sweated, USP, dms.	100	8.00
Formalol, sweated, Indian	100	8.75
Formalol, sweated, 100 lb.	100	8.00
Formalol, sweated, 100 lb.	100	8.00
Formaldehyde, 42.5% photo grade	100	8.00

Ferric chloride, sewage grade, 100 percent basis, f.o.b. works, tank		
Ferric nitrate, 40% Fe, f.o.b. l.b.	176.00	255.00
Ferric oxalate, tech., gran., 50% dm., f.o.b. works	.84	—
Ferric oxide, f.o.b. works	1.65	—
Ferric oxides (see Iron Oxides)		
Ferric phosphate, FCCG insoluble powder, 100% Fe, f.o.b. works	1.10	1.15
Ferric pyrophosphate, soluble, pearl, 50% dm., f.o.b. works	1.11	—
Ferric resinates, naptha, 6.75% Fe, dm., trolite ft. sold	.45	—
Ferric sulfate, partly hydrated, 100% bgs., c.i., works	141.00	—
Ferric sulfate, tech., f.o.b. works	117.00	—
Ferric ammonium citrate, NF, brown, green gran., 100 lb. dm., 5.000 lb. min., f.o.b. shipping pt.	2.00	2.95
2c. per pound surcharge for shipments W. of Denver		
Ferric ammonium oxalate, fine gran., 250 lb. dm., 11, f.o.b. works	.42	—
Ferric hydroxyethylene diamine, acetic acid, industrial grade, sodium salt, 50%, 4.5% Fe, f.o.b. works	.55	—
Ferric sulfate, sodium salt solution, 5% Fe, f.o.b. works	.64	—
Ferrous fluoborate liq. conc., dm., U.S. works, ft. sold	.24	—
Ferrous gluconate, NF, 100% Fe, f.o.b. works	.85	—
Ferrous naphthenate, liq., 6% Fe, dm., divd.	1.17	—
Ferrous sulfate, moist, bulk, U.S. works, partly hydrated, gran., U.S. works	30.00	—
Ferrous sulfate, gran., bulk, U.S. works	145.00	150.00
Ferrous sulfate, gran., bulk, U.S. works	170.00	180.00
USP, 50% 400 lb. dm.	.61	—
For. of Canada dms.	10.20	—
Solena, dms.	8.75	.75
Fish oil, red, alk., tanks, c.i.	.29	—
Kittling, 100% fish oil, tanks, c.i.	.32	.30
Light, cold-pressed, dms., c.i.	.34	—
tanks, c.i.	.26	—
Fishmeal, dom., menhaden, 60% protein grad., bulk, f.o.b. Atlantic port	295.00	—
f.o.b. Gulf port	290.00	—
imp., Chilean, 65% protein min., bulk, c.i. 100% whole, f.o.b. Albuque. and Gulf ports	285.00	—
Fluorac. al. ins., U.S. works ft. sold	.70	—
Fluorocarbon, No. 11, bulk, tanks, daved.	.57	—
No. 12, bulk, same basis	.69	—
No. 22, bulk, same basis	1.05	1.10
No. 33, bulk, same basis	.89	1.10
No. 114, bulk, same basis	1.02	1.10
Fluossilicic acid (see Hydrofluosilicic acid)		
Formaldehyde, 37% methanol/free (inhibited), dm.	.086	0.09
44-45% (1% methanol) tanks, divd.	1.015	1.10
37% (inhibited 7% methanol)	.0945	1.10
37% (inhibited 11-15% methanol) tanks, divd.	1.055	1.10
Formamide, tanks, f.o.b.	.38	—
dms., same basis	.44	—
Formic acid, 90% tanks, f.o.b. works	.381v	—
95% dms., c.i., works	.501v	—
Fruicose, cryst., 18,000 kilos or more, dm.	.90	1.00
Fumaric acid, food grade, bgs. 10 lb. ft. equald E.	.75v	.75
tech. grade, bgs., U.S. f.o.b. ft. equald E.	.75	.85
Furfural, 100% tech. grade, f.o.b. U.S. works, and Brite Glass, Fla.	.76	—
Furfuryl alcohol, tanks, f.o.b. Memphis, Tenn. and Omaha, Neb.	.72	—

WEEK ENDING SEPTEMBER 5, 1986

Pentachloroethane, dry cleaning grade, clear, tanks, divd. lb.	28 1/2	
Indust. grade, consumers, tanks, divd. lb.	31	
Pericaco, dms. lb.	2.55	
Permanent red 2B, (red 48), calcium salts, dms., frt. ahd. lb.	5.25	
benzoin salts, same basis. lb.	5.25	
Peru balsam, frt. ahd. lb.	25	
Petroleum, Fargroup, tanks, divd. lb.	5.75	6.25
Petroleum, USP, snow white, dms., c. l. refly. lb.	3.75	
USP, white, dms., c. l. refly. lb.	3.10	
USP, white, dms., c. l. refly. lb.	3.10	
USP, white, dms., c. l. refly. lb.	3.70	
Petroleum, USP, Lilly white, tanks, lb.	3.05	
USP, cream, dms., c. l. refly. lb.	3.65	
tanks, refly. lb.	3.0	
USP, soft yellow, dms., c. l. refly. lb.	3.50	
tanks, refly. lb.	2.85	
USP, amber, dms., c. l. refly. lb.	3.45	
tanks, refly. lb.	2.80	
Petroleum pitch (see Asphalt, petroleum).		
Petroleum sulfonates, 55-62% alkyl cont., HMW, bulk, works. lb.	48 1/4	48
LMW, same basis. lb.	49	
LMW, same basis. lb.	49	49 1/4
Prices for 5% sodium content 2c per lb. lower on com- pounding molecular weight.		
Phenacetin USP, powd., 200-lb. dms., 1,000-lb. lots, divd. lb.	2.20	
100-lb. lots, 1,000-lb. lots, divd. lb.	2.22	2.45
p-Phenylene diamine, tanks, divd. lb.	2.22	
Phenobarbital, USP, dms., 500-kilo lots, f.o.b. works. kilo	17.50	
Phenobarbital-sodium, NF, 500-kilo lots, f.o.b. works. kilo	22.00	
Phenol, sp. tanks, frt. equiv. lb.	25	29
p-Phenolsulfonic acid, 85% sol'n, dms., c. l., fob works. lb.	54	
tanks, same basis. lb.	68	
Phenothiazine, Indust., 50-lb. bags, c. l., f.o.b. works. lb.	2.63	
purif. grade, same basis. lb.	2.99	
Phenyl acetate, dms., 100-lb. lots, works. lb.	1.04	
Phenylacetic acid, pure cryst., 25-lb. cns. lb.	4.50	
di-Phenylamine, dms., 25-kilo lots lb.	84.00	
1-Phenyl-3-carbethoxy pyrazolone-5, dms., 200-lb. lots, divd. E. lb.	3.45	
m-Phenylenediamine, cast, dms., c. l., f.o.b. works. lb.	2.07	
o-Phenylenediamine, flaked, dms., (L), f.o.b. works. lb.	3.25	
p-Phenylenediamine, flaked, dms., f.o.b. works. lb.	4.00	
Phenylphenyl hydrocarbonate, USP 100-kilo lots or more. kilo	175.00	185.00
Phenylphenyl acetate, dms. lb.	3.35	
2-Phenylphenyl alcohol, NF, 100-lb. p-Phenylphenyl, dms., 30,000 lbs. or more, frt. ahd. lb.	2.10	2.20
Phenylphenyl acetate, 25-lb. cns. lb.	1.50	
Phenylpropanediamine hydrochloride, 100-kilo lots or more. kilo	6.50	6.90
Phenylhydrazine, 85% min. dms., lb.	3.50	
1-Phenyl-3-methyl-5-pyrazolone, dms., 250-lb. lot divd. E. lb.	1.80	
o-Phenylphenyl, dms., 30,000 lbs. p-Phenylphenyl, bgs., 41,000 lbs. or more, works. lb.	1.35	2.00
Phenylpropanediamine hydrochloride, 100-kilo lots or more. kilo	1.85	
Phenylacetylene, purif. cryst., dms. E. lb.	2.75	
tech. cryst., E. lb.	2.25	
Phloxine (toner (red 80), dms., frt. aid. lb.	2.35	
Phosgene, 1-ton net crys., 5 to 9-cy. units. lb.	1.95	2.05
Phosphate rock, fls., land pebble, run of mine washed, 68-69% b.p.1. bulk c. l. mines. lb.	23.15	
iron vessted, Tampa, same basis. ton	29.00	
Phosphoric acid, 52% min. and tech. grades, 75% tanks. lb.	33.50	
Food grade prices \$2.00 above tech. grade.		
Phosphoric acid, agricultural grade, 75% min. p. p. 1., tanks. lb.	31.0	
super, min. 70% a.p.a., same basis. lb.	34.5	
Phosphorus, white, 100-lb. tanks, c. l. works, f.o.b. works. lb.	1.00	
Phosphorus oxychloride, tanks, frt. aid. lb.	.81	
Phosphorus pentasulfide, powd., dms., c. l., works. lb.	40	
lots bgs. sellers. 100lbs.	50.00	
Phosphorus pentoxide, dms., (L), works. lb.	45.00	
Phosphorus sesquisulfide, dms., cns., c. l., works. lb.	.82	
Phosphorus trichloride, dms., E. l., works. lb.	.38	
tanks, works. lb.	.45	
Phthalic anhydride, flake, c. l., (L), dms., frt. equiv. lb.	.35	
prices 1-1 1/2% per lb. higher on the West Coast.		
Phthalimide, flake, works. lb.	.27	
Phthalic anhydride, blue toner, red shade, bbs., frt. ahd. E. Fls. lb.	8.10	9.00
green shade, same basis. lb.	8.20	
resinated bbs., same basis. lb.	6.40	8.00

Phthalocyanine blue toner, water dis-			
persible, bbls., same base		7.05	7.75
Phthalocyanine green toner, all grades,			
bbls., 1 ft. aird. E. of Rock		8.10	10.10
Phthalocyanine green toner, reflatend,			
bbls., same base, 1 ft.		7.45	9.20
Phthalysulfate tints, dms., 500-1000			
lbs., 1 ft. aird.		8.61	-
Phthalins, red, mixed, bulk		2.81	-
Picrodian, pure paste, 25-lb. dms., c.i.			
dry basis, f.o.b. Charlotte,		6.00	-
N.C.			
tech. paste, 25-lb. dms., 1 ft. dry ba-			
sis, f.o.b. Charlotte, N.C.		5.00	-
Pigment green B, kgs.		2.20	-
Piropic acid hydrochloride, USP,		1,500.00	2,000.00
Pimento see Alfatop			
Pimento leaf, dms.		14.50	-
Pine oil, 80% min. alcohol content,			
100 lb. wks., 1 ft. aird.		47.00	\$3.00
Pine oil, 100 lb. wks., same			
base, 1 ft. aird.		51.00	54.00
P-pine, perfume grade		1.82	-
tech. grade		1.82	23
P-pine, perfume grade, 100 lbs.		2.30	-
tech. grade, dms.		.35	.40
Piperazine, anhyd., dms., 1 ft. aird.		1.80	-
Piperazine, 36% dms., 1,100-			
lb. lots, 1 ft. aird.		2.25	2.35
Piperazine dihydrochloride, 53%			
dms., 1 ft. aird.		2.00	-
Piperazine hydrochloride, 1,100-1b.			
lots, 1 ft. aird.		1.60	-
Piperazine phosphates, 42%, dms., 1 ft.			
aird.		1.80	-
Piperidine dist., 98% min. dms., c.i.,			
works		6.92	-
Piperonyl butoxide dms., divid. E.		6.00	-
of Rock		671.00	-
Platinum, metal, works		1.84	1.86
Polyacrylate resin, pellets, nat.,			
100 lb. wks.			
Polyester resin, unsaturated, g.p., or-			
thophthalic, bulk, tankcars,		51	53
100 lb. wks.		56	62
Isophthalic, bulk, tankcars,			
100 lb. wks.			
Polyethylene resin, high-density, blow			
molding, g.p., hopper cars, 1 ft.			
aird.		43	48
Injection molding, g.p., 100 lb. wks.			
cars, 1 ft. aird.		43	46
extrusion, g.p., hopper cars, same			
base		47	48
wire and cable, nat., hopper cars,			
same base		45	49
wire and cable, bulk, same ba-			
sis		56	57
Polyethylene resin, low-density, 100			
lb. wks.		35	-
clarify film, hopper cars, 1 ft.			
aird.		37	-
pellet shrink film, hopper cars,			
same base		35	-
extrusion coating, hopper cars,			
same base		38	42
g.p., hopper cars, same base		38	42
Polyethylene resin, low-density, g.p.			
resin		36	40
blown film resin		40	43 1/2
cast film resin		40	45
Polyethylene resin, low-density, injection			
molding, g.p., hopper			
cars, same base		45	48
ins wire, CATV, power cable		.947	-
wire and cable, thermoplastic, nat.			
voltage, natural color, same			
base		70	74 1/2
wire and cable, XLPE low voltage,			
14% carbon black, same			
base		67 1/2	72 1/2
wire and cable, black, 100 lb. wks.		587	667
Polypropylene sulfates, USP, bulk, 60-lb.			
units, 1 ft. aird.		52	-
Polyoxyethylene sorbitan monos-			
ulfate, dms., 20,000-lb. lots,		73	-
works			
Polyoxyethylene sulfates, 100 lb. wks.			
dms., 20,000-lb. lots		73	-
Polypropylene resin, homopolymer,			
g.p., nat., 1 ft. aird.		45	48
copolymer, med. impact,			
same base		50	56
high impact, same base		53	60
Colored material see per lb. higher for			
each grade			
Polyethylene resin, crystal, nat., hopper			
cars, 1 ft. aird.		48	-
Impact, nat., hopper cars, same ba-			
sis		51	-
High heat, high impact, nat., hopper			
cars, same base		52	-
expandable buten (PE), pigging			
grade, 1,000-lb. lots		89	-
modified, same base		73	-
Polyvinyl alcohol, fully hydrolyzed,			
medium viscosity, bgs., 1 ft.			
aird.		1.00	1.05
partially hydrolyzed, medium viscosi-			
ty, bgs., 1 ft. aird.		1.05	-
Polyvinyl chloride, dist., g.p., homo-			
polymer dispersion, bgs., 1 ft.			
aird.		50	-
g.p. suspension, bulk, same ba-			
sis		38	-
film grade, bulk, same base		37	-
pipe grade, bulk, same base		47	47
Polyvinyl chloride, g.p. copolymer dis-			
persion, same base		58	6
P-polymer suspension, same			
base		45	4
G-g-ped, Dutch, bgs.		49	-
Turkey, bgs.		53	-
Potash, acidulph (see potassium sulfate).			
Potash, caustic, kq., 45% basis, tanks,			
100 lbs.		13.00	-
West Coast, 50% basis, tanks,			
ex. tankers		18.06	-
reg. flake, 98-92%, 400-lb. dms., c.i.			
100 lbs.		42.35	-
Potassium acetate, NF, gran., dms., 1 ft.			
world E.		90	1.3
Potassium bicarbonate, nat., gran.			
bgs., c.i., works		31 1/2	-
Potassium chloride, USP, gran.			
dms., 1 ft.		79	-
Potassium chromate, gran., 400-lb.			
dms., c.i., 1 ft. wks.		46	-

potassium bifluoride, tech. dms., c.l. works, trt. equiv.	lb.	45	49
potassium bitartrate, NF, gran. powd. bgs.	lb.	90	120
potassium borohydride, powd. dms. 100-1,000 lbs. works, gran.	lb.	18.00	20.00
potassium bromate, gran. c.l.	lb.		
200-lb. dms., c.l.	lb.	1.08	-
works.	lb.		
potassium bromide, NF, gran. dms.	lb.	1.12	-
c.i., carb. lvs.	lb.		
potassium carbonyl fluoride, 47% C ₂ F ₄ units, c.w.	lb.	15.40	-
dms., c.l., 11. works.	lb.	20.65	-
calmed, 99-100% K ₂ CO ₃ , hopper cars or trucks	lb.	32.50	-
works	lb.	36.40	-
bgs., c.l., works.	lb.		
potassium carbonate, hydrated, 81-88% K ₂ CO ₃ , dms., c.l., 11. works.	lb.	34.90	-
100-lb. dms.	lb.	33.70	-
bgs., c.l., works.	lb.		
potassium carbonate, gran. purif. 400-lb. dms., c.w. lots.	lb.		46
potassium chlorate, cryst. dms., c.l. works	lb.	140	-
powd., dms., c.l., works	lb.	30	-
purif., gran. 325-lb. dms., i.o.b. shipping point	lb.	40	-
potassium chloride, chemical grade, 99.95% KCl, bulk, c.l., i.o.b. works	ton	105.00	-
USP cryst. dms.	lb.	1.12	-
USP gran. dms.	lb.	67	-
USP powd., dms.	lb.	67	-
potassium chlorate, agric. grade (see Potassium muriate).	lb.		
potassium chromate, purif., cryst., dms., works	lb.	.57	-
potassium citrate, NF, gran., 200-lb. dms., trt. equiv.	lb.	.93%	-
potassium cyanide, dms., 20,000-lb. lots or more, i.o.b. works.	lb.	1.32	-
potassium dichromate (see Potassium dichromate).	lb.		
potassium fluoride, tech. dms., c.l., works	lb.	1.40	1.42
potassium fluoride, anhyd., dms., 11.	lb.	1.68	-
potassium gluconate, dms., 11, i.o.b. works	lb.	1.45	-
Picea W. of Oliver 4c per 100 lbs.	lb.		
potassium guaiacolsulfonate, 300-lb. dms., 600 lbs. or more trt. equiv.	lb.	2.10	-
potassium hydroxide, tech. dms., c.l., works	lb.		
potassium hydroxide, USP pellets, 100-lb. dms., c.l., 11. works, trt. equiv.	lb.	1.29	1.31
potassium iodide, USP, gran., cryst., c.w.	lb.	10.72	12.39
ACS grade truckload	lb.	11.32	13.55
potassium-magnesium sulfate, std., bgs., works.	ton	59.00	-
base 40% K ₂ SO ₄ and 55% MgSO ₄ , bulk, works.	ton	67.00	-
potassium metapsulfate, gran. dms., 11.	lb.	.44	-
potassium muriate, 60-62.4% min. K ₂ O, std., c.l., 11. works, trt. equiv.	lb.		
Canada, i.o.b. Sask.	lb.	44.00	45.00
soluble, fine std., i.o.b.	ton	48.00	47.00
Sask.	ton	49.00	50.00
gran., i.o.b. Sask.	ton	50.50	51.50
potassium nitrate, ftr. grade, std., 50-ton c.l., divd. SE.	ton	287.00	274.00
prtd.	ton	267.00	264.00
tech.	ton		
divd., c.l., min. 50 tons	ton	470.00	-
potassium oxalate, neutral, tech., fine gran., powd., 300-lb. dms., trt. equiv.	lb.	2.54	-
potassium penicillate, c.w.	lb.		
dms., works	lb.	1.01	-
c.i., same basis	lb.	1.06	-
potassium persulfate powder 15c. per lb. higher.	lb.		
potassium perchlorate, works.	lb.	.78	-
potassium permanganate, free flowing, bulk, hopper trucks	lb.	1.08	-
works	lb.		
50-lb. dms., same basis	lb.	1.17	-
150-lb. dms., same basis	lb.	1.17	-
potassium permanganate, USP, 50-lb. kg., works, c.l., 11.	lb.	1.38	-
potassium persulfate, 225-lb. dms., 24,000 lbs. or more	lb.		
plant.	cwt.	78.80	-
d/l same basis	cwt.	72.50	-
potassium pyrophosphate tetrahydrate, c.l., 11. works, trt. equiv.	lb.	43.75	47.25
bulk, same basis	100 lbs.	48.00	49.00
potassium selenate, USP, gran., 200-lb. dms., 2,000 lbs. or more, works	lb.	1.52	-
trt. std.	lb.		
USP, powd., 300-lb. dms., 2,000 lbs. or more, same basis	lb.	1.42	-
potassium silicate, soln., 2.8-30.2 Be, 2.5 ratio, dms., c.l., 11. works	lb.	18.90	-
dms., c.l., 11. works.	100 lbs.	25.90	-
potassium silicate, 40-40.5 Be, 2.1 ratio, c.l., 11. works	100 lbs.	25.05	-
40-40.5 Be, 2.1 ratio, c.l., 11. works	100 lbs.	32.05	-
potassium silicate, electronics grade, 30-50.4 Be, 2.1-2.2 ratio, c.l., 11. works	lb.		
solid or glass, 2.15 ratio, dms., c.l., 11. works.	100 lbs.	53.30	-
solid or glass, 2.5 ratio, dms., c.l., 11. works.	lb.	45.85	-
"Ratio" indicates percentage by weight of SiO ₂ divided by percentage by weight of K ₂ O.			
potassium sulfonate, bgs., c.l., 11. works	lb.		
potassium-sodium tartrate, NF, gran. or powd., dms.	lb.	.80	1
potassium sorbate, 11. dms., divd. trt. equiv.	lb.	2.20	3
potassium stearate, agric. grade	lb.	N.A.	
potassium sulfate, agric. grade	lb.		
min. 50% K ₂ O, bulk, c.w.	ton	180.00	180
potassium sulfate, gran. purif. 400-lb. dms.	lb.		

Potassium carbonate, gran., lbs. 51	works	lb.	1.10
dms. same base	lb.	1.15	
Potassium tetraborate powder 15c per ton	ton	4.01	
Potassium tetraborate, USP, crystal, 725 lbs. 5 tons	lb.	1.10	
tech. crystal, dms. 11	lb.	.82	
Potassium titanate, ctms. c.i., works	lb.	.71%	
Potassium-titanium fluoride, tech. works	lb.	1.28	1.58
Potassium-titanium fluoride, tech. dms. 11 works, trl. equal	lb.	.74	
Predictorone USP dms. 5 kilos or more	gram	1.03	
Predictorone acetate, USP, dms. 5 kilos or more	gram	1.12	
Prednisolone, anhyd., USP, dms. 5 kilos or more	gram	1.12	
Procaine hydrochloride, USP, antibiotic grade, dms. 2,000-10,000 lbs. trl. equal	lb.	4.95	5.75
Procaine hydrochloride, USP, multiple grade, dms. 1,000-10,000 lbs. trl. equal	lb.	4.95	5.50
Propylene glycol, tanks, f.o.b. E	lb.	35%	
Propionic acid, tank, pure, tanks, divd	lb.	.33	34%
n-Propyl acetate, USP, dms. 100-2,000-10,000 lbs. trl. equal	lb.	.33%	
n-Propyl glycol, tanks, f.o.b. E	lb.	.42	44
n-Propylthio dms. 100 to 2,000-10,000 lbs. trl. equal	lb.	11.50	
n-Propyl-p-hydroxybenzoate, USP, 5 kilos	lb.	10.80	
tech. 500 kilos, f.o.b. E	lb.	10.36	
Propyl paraben (see n-Propyl-p-hydroxybenzoate)	lb.		
Propylthio, dms. 30-100 lbs. or more	lb.	55.00	
n-Propylmercuric, dms. c.i., divd	lb.	.75	.80
Propylene, polymer grade, I.o.b. Tex. and La. Gulf Coast points	lb.	.17%	
chemical grade same base	lb.	.15%	.18
Propylene glycol, indust. tanks, f.o.b. E	lb.	.40	41
USP, tanks, I.o.b. E	lb.	.43	44
Propylene glycol monomethyl ether, tanks, f.o.b. E	lb.	.40	
trl. equal	lb.	.47%	
Psyllium seed, USP powder bgs. 15	ton	300.00	1.75
Pumica, dms. 100, 4F-0, 0% medium, 0V-1 1/2, bgs., tons	ton	270.00	
coarse, 2-extra coarse, bgs., tons	ton	300.00	
Pumica, imp. Italian, dms. bgs., tons	ton	280.00	
lots f.o.b. East Coast	ton	350.00	
lots f.o.b. East Coast	ton	300.00	
Pyrazolone red (red 38), dms., works	lb.	5.25	5.35
Pyrethrum flowers, 100 gr. 0.9% pyrethrins, tons, f. alt. lb.	lb.	1.91	
Pyrethrum, purified, 10% pyrethrins, dms., works	lb.	37.50	37.75
Pyridine, red, 2-deg., c.i., works	lb.	5.80	
dms., tanks	lb.	5.70	
Pyridoxine hydrochloride, USP, 100 lbs. or more, dms.	lb.	29.00	30.00
Pyrites, Canadian, 8-50% S, mines	ton	4.60	5.00
Pyrogallol acid (see Pyrogallol)	lb.		
Pyrogallol, 100-lb. dms. 1,000-lb., tanks, same basis	lb.	13.70	15.25

Quinacrin chips	lb.	.57	
Quinacridone maroon, dms., trl. alt.	lb.	20.75	21.25
red, dms., trl. alt.	lb.	21.75	21.25
red, dms., trl. alt.	lb.	21.75	21.25
viol. dms., trl. alt.	lb.	20.00	20.75
Quinacridone, dms.	lb.	2.20	4.25
Quinidine sulfate, USP, 1,000-oz. dms., 2,000-oz. or more	oz.	2.45	2.50
Quinine hydrochloride, NF, 1,000-oz. dms., 2,000-oz. or more	oz.	2.30	1.90
Quinine sulfate, USP XVII, 1,000-oz. dms., 2,000-oz. or more	oz.	1.49	
Quinine dms., 11, trl. equal	lb.	1.43	
tanks, same basis	lb.	1.43	

R salt tech., 304 material wt.	lb.	2.12	
Racemethionine, USP	50-250	8.00	
250-500 kilos	500	8.50	
500 or more kilos	1,000	1.07	
Red grade, 99% min., oil, U.S.	lb.	22.00	
Resacrol, dms.	lb.	55.00	
Resacrol (see asperin) root, powd., bgs.	lb.	2.00	
Red cambrine, No. 40 (see Geracine No. 40)	lb.		
Red precipitate (see Mercuric oxide, red)	lb.	.40	
Resacrol, USP, crystal, bgs.	gram	3.95	
Resacrol, tech. bgs., 11, works	lb.	9.50	
Resacrol, USP, dms. 50 kilos	lb.	9.50	
or more, works	lb.	9.50	
powd., dms., same basis	lb.	1.90	
Resacrol monochlorate, dms. 1,000 lbs. or more	lb.	1.90	
Rhodamine red toner, molybdenated, PMAA, dms. works	lb.	11.50	14.00
tungstated, PTMA, dms., f.o.b. works	lb.	105.00	105.00
Rhodolite, 75-80% dms.	lb.	18.25	
syn. dms.	lb.	18.25	
Rhubarb root, indie. whole, bgs.	lb.	34.00	
powd., bgs.	lb.	34.00	
Riboflavin, feed grade, 25 kilos	lb.	24.00	
Riboflavin, USP, 25 kilos, dms.	lb.	150.00	
Riboflavin 2-phosphate, bgs.	lb.	150.00	

[illegible][illegible][illegible]

WEEK ENDING SEPTEMBER 5, 1986					
an monosulfate, dms., c.i., l.l.					
30,000 lb. min., f.o.b. works.....	.76	-			
an triflate, c.i., 30,000 lb. min., f.o.b. works.....	.80	-			
at USP, reg. 70% aqueous, dms., c.i., f.o.b. shipping					
tanks, f.o.b. packing point..	.35	-			
an, c.i., l.l. works.....	.60	-			
nd, dms., c.i., l.l. works.....	.78	.74			
ean lead (See also, Para A & Waste market report.)					
ee oil acidulated, capsoctic, 98% acd, tanks, New York R.	.14	.15			
eed of, acid, dist., dms., f.o.	.48	.69			
entals.....	.43	.44			
d, dms.....	.47	.68			
tanks.....	.38	.43			
ermit leaves, imp., lbs.....	2.50	2.70			
ermit oil, Far West, native.....	14.00	16.00			
edged, native.....	10.00	12.00			
r West, Scotch.....	15.00	15.50			
id, Scotland.....	14.50	15.26			
ce oil, dist.....	8.00				
lvent's breed.....	.29	.30			
nnic chloride, anhyd., dms., works.....	N.A.	-			
n oxide dms., works.....	N.A.	-			
nous chlorine, anhyd., dms., v.e. R.	N.A.	-			
nuous fluoroborate, liq. conc., dms., t.l. works, rt. equal.....	2.50	-			
nuous oxide, dms., pressed.....	N.A.	-			
nuous silica, dms., works.....	N.A.	-			
ngle-pressed, bulk.....	.26	.39			
ingie-pressed, bulk.....	.28	.376			
ramonic, works, bags.....	.32	.40			
egmionic sulfate, USP, bulk.....	47.00				
ronium carbonate, glass grd., bgs., t.l. works.....	37%	-			
ronium nitrate, 50-lb. bgs., f.o.b. 100 lbs.....	61.50	-			
rylene monomer, 99.6% min., t.c., t.l. f.o.b. works.....	.21	-			
ylene-acrylonitrile resin, nat. bulk, f.o. plant.....	.77	-			
ystal, bulk, same basis.....	.77	.81			
clear, same basis.....	.77	.81			
tyro acetate, dms., l.t. works.....	2.35	-			
ucinic acid, purif., cryst., dms., rt. and.....	2.00	2.10			
rylic anhydride, dms., c.i., t.l. f.o.b. work.....	1.71	-			
ucose and urea, bgs., c.i., f.o.b. refy. E.....	33.10	-			
ucose acetate, laubutyrate, 80% dms., t.l. divid.....	1.18	-			
tanks.....	1.10	-			
100%, dms., t.l. divid.....	1.18	-			
ucose octa-acetate, denaturing grade, 100-lb. dms., f.o.b. kilo	12.60	13.50			
albenazamide, dms., 500 kilos.....	38.50	-			
albenazamide-sodium, dms., 500 kilos.....	25.00	-			
alfacetate, USP, dms., 500 kilos.....	20.00	23.50			
alladazine, USP, powd., dms., 500 kilos.....	53.00	-			
allidine-sodium, USP, dms., 500 kilos.....	40.70	-			
amrazine, USP, microcrystals, dms., 500 kilos.....	33.50	-			
UP, powd., time, 500 kilos.....	32.00	-			
amelazide-sodium, USP, powd., dms., 60 kilos.....	13.00	-			
amazone, powder, dms., 500 kilos.....	9.50	10.00			
ameo acid, crystal, bgs., c.i., l.l. works.....	38.00	41.00			
ameo acct, gran., dms., c.i., l.l. works.....	.36	-			
amamide, NF, reg. 1,000-lb. dms., rt. equal.....	2.00	-			
amic acid, tech., bgs., l.l. f.o.b. kilo.....	.67%	-			
ingoxaline, veterinary, grade, dms., 500 kilos.....	8.00	-			
roude, right, molten, dms., f.o.b. U.S. Gulfport.....	150.00	-			
U.S. Gulfport.....	125.50	-			
U.S. Gulfport.....	125.60	-			
terminal, Rotterdam.....	103.00	-			
U.S. Gulfport.....	125.00	-			
delivery.....	132.00	-			
ex-Tampa, Fla.....	157.50	-			
ru, crude, 99.6% min, purity, comt. 50-lb. bgs., c.i., mtns base.....	13.80	-			
no, same basis.....	13.60	-			
rt, 98.5% min, purity, nols 50-lb. bags, c.i., mtns base.....	17.60	-			
ur, light, 50-lb. bgs., same basis.....	20.00	-			
ur, white, 50-lb. bgs., 99.8% min, purity, 60-lb. bgs., c.i. mines base.....	28.00	-			
rubmerkers, 99.6% min, purity, cont. reg., 50-lb. bgs., c.i., mines base.....	14.80	-			
rd, 98% min, passing through 325 mesh, same basis.....	16.10	-			
ried, dms., c.i., works, rt. equal.....	.24	-			
tanks, same basis.....	.17%	-			
trondite, liq. comt. multi-unit cars, dms., f.o.b. works.....	225.00	-			
ur, white, 50-lb. bgs., c.i., monoethoxide, dms., c.i., works, rt. equal.....	210.00	220.00			
ur, same basis.....	22%	-			

CHEMICAL IMPORTS

US imports of chemicals and related materials are reported in this section by CPI material. Listings include consignee where possible, container, net weight, name of vessel (in parentheses), port of origin and date of shipment's arrival in New York or the Port of New York.

US chemical imports/exports are tabulated monthly in the market reports.

A-3

ABS RESIN Goldmark Plastic Containers 10,200 bgs (898,448 lbs) (Ming Galaxy) Busan, 8/1.

ACETAMINOPHEN USP Daniel F Young 3 dms (387 lbs) (Atlantic Ocean) Liverpool, 7/28.

Staring Organic 243 dms (42,747 lbs) (American Lynx) Rotterdam, 8/1.

241 dms (42,486 lbs) (Sea Land Express) Rotterdam, 7/31.

ACETATE Myra Group 5 dms (2,414 lbs) (Colombo) Valencia, 8/7.

Rhone Poulenc 54 dms (27,818 lbs) (Atlantic Bong) Le Havre, 7/30.

ACETATE LINALYL SYNTHETIC Order 156 pkg (67,227 lbs) (Atlantic Ocean) Le Havre, 7/30.

Order 1 dms (483 lbs) (Americana) Barcelona, 8/1.

ACETO ACID B P Chemicals Americana 1 bks (881,828 lbs) (Jo Brawk) Rotterdam, 8/5.

ACETONONE Order 71 dms (35,408 lbs) (Nedloyd Rotterdam) Felixstowe, 7/29.

ACETYL P RESIDINE Order 113 dms (21,175 lbs) (Ming Galaxy) Kobe, 8/1.

ACETYL P AMINOPHENOL Rhone Poulenc 360 dms (42,699 lbs) (Atlantic Bong) Le Havre, 7/30.

ACETYL SAUCILIC ACID Janet Intl Fwds 30 ctn (42,229 lbs) (TFL Franklin) Rotterdam, 7/28.

AGAR NARL Cgm French Line 120 bgs (13,386 lbs) (Aisler) Barcelona, 7/28.

Harvi Pepper 40 dms (4,850 lbs) (Ever Goods) Osaka, 7/28.

ThyssenImports 180 dms (192,290 lbs) (Americana) Rotterdam, 8/2.

ALLEPEY FINGER TURMERIC Altair Brothers 480 bgs (88,888 lbs) (American California) Singapore, 7/28.

Low Fast 240 bgs (33,455 lbs) (American California) Singapore, 7/28.

Order 240 bgs (33,618 lbs) (American California) Singapore, 7/28.

ALLYL BETHOXYANATE Mdal 31 cs (3,203 lbs) (Aldoban) Rotterdam, 8/2.

ALOEBA Order 22 ctn (1,444 lbs) (Sandra) Haine, 7/31.

ALPHA NAPHTHOL Moberly Chemical 17 dms (8,335 lbs) (Strathcon) Rotterdam, 7/31.

ALUMINA CODE Mico Abrasives 5 dms (1,609 lbs) (Americana) Genoa, 8/1.

ALUMINUM NITRATE ACS ACS Chemicals 20 dms (4,674 lbs) (Tobhai Maru) Tokyo, 7/28.

ALUMINUM OXIDE Atlas Intermodal Transport 1,380 bgs (78,880 lbs) (Ming Galaxy) Yokohama, 8/1.

Depress 1 cs (22,848 lbs) (Zim Inter) Barcelona, 7/27.

Ordnahst 50 aks (5,143 lbs) (Kohn Express) Bremen, 7/28.

ALUMINUM PASTE Landers Segel Cook 191 dms (45,478 lbs) (Tadoux Kobolusky) Bromheraven, 7/28.

ALUMINUM PHOSPHATE Harold Pepper 100 bgs (4,208 lbs) (Lale Maru) Tokyo, 7/31.

ALUMINUM STEARATE Baitu Chemicals 180 bgs (3,567 lbs) (American Astronauta) Buenos Aires, 7/31.

ALUMINUM SULFATE BENZAMIDE Order 17 dms (2,474 lbs) (Ming Galaxy) Kobe, 8/1.

ALUMINUM BICARBONATE Rhone Poulenc 20 ptt (37,037 lbs) (Nedloyd Rotterdam) Rotterdam, 7/28.

ALUMINUM CHLORIDE Order 10 aks (0 lbs) (Bokifatos) Rotterdam, 7/27.

ALUMINUM SULFATE Atlas Intermodal Transport 1,800 bgs (80,507 lbs) (Ming Galaxy) Kooling, 8/1.

Alcoa Loda Furch 800 aks (39,804 lbs) (Colombo) Valencia, 8/7.

ANTIMONE HARMLESS Barmhoo 1,800 bgs (82,822 lbs) (Maderban) Le Havre, 8/1.

ANTONY ALLOY Leyden Customs Expeditors 720 pkg (45,572 lbs) (Kohn Ausrala) Rotterdam, 8/1.

ANTONY OXIDE Sanderco 800 bgs (41,411 lbs) (Ever Galaxy) Le Havre, 8/1.

ANTONY SULPHIDE LUMPS Ltd Group 340 dms (35,262 lbs) (American California) Hong Kong, 7/28.

ARYLDES Lanza 198 bgs (10,975 lbs) (Kohn Express) Rotterdam, 7/28.

AZOBENZONAMIDE Park Enterprises 1,800 bgs (81,411 lbs) (Ming Galaxy) Busan, 8/1.

BALSAU Corral Intl Trg 11 dms (6,010 lbs) (San Pedro) Haine, 8/1.

BARIUM HYDROXIDE Its Container 800 bgs (45,324 lbs) (Strathcon) Leghorn, 7/29.

BARIUM HYDROXIDE MONOHYDRATE Plexchem Intl T C Container 1,800 bgs (80,430 lbs) (Cape Haters) Rotterdam, 7/30.

BEHALDEHYDE Chemical Dynamics 28 dms (12,496 lbs) (Maderban) Rotterdam, 8/2.

Intl Fwds 78 dms (38,568 lbs) (Kohn Express) Rotterdam, 7/28.

BENZILONE DISULFONIC ACID Bemo Shpg 10 dms (3,311 lbs) (Ming Galaxy) Kobe, 8/1.

BENZONAMINE James S Fox 591 bgs (44,438 lbs) (Maderban) Hamburg, 8/1.

BENZOYL CHLORIDE Marlborough Chemicals 1 tnk (93,818 lbs) (Aldoban) Felixstowe, 8/2.

BENZOYL PEROXIDE M G Transport Warehouse 8 se (92,402 lbs) (American Lynx) Bremenheraven, 8/7.

BENZYL ALCOHOL Chemical Dynamics 50 dms (24,030 lbs) (Nedloyd Rotterdam) Rotterdam, 8/2.

Nedloyd Intl 75 dms (38,878 lbs) (Colombo) Barcelona, 8/7.

Order 20 dms (7,900 lbs) (Colombo) Barcelona, 8/7.

Sank Tank Containers 1 ac (41,402 lbs) (Atlantic Ocean) Liverpool, 7/28.

BENZYL ALCOHOL (Asphatene) Haine, 8/1.

(41,402 lbs) (Asphatene) Haine, 8/1.

BENZYL ALCOHOL THERMAL CHT 78 dms (39,036 lbs) (Maderban) Le Havre, 8/1.

BENZYL ALCOHOL Thorsen Chemical 78 dms (38,406 lbs) (Colombo) Barcelona, 8/7.

BENZYL PROPIONATE Chemical Dynamics 2 dms (381 lbs) (Aldoban) Rotterdam, 8/2.

BETA HYDROXYNAPHTHOIC ACID Ives Peak Chemicals

Intl 640 bgs (35,979 lbs) (Ming Galaxy) Kobe, 8/1.

BETA HYDROXYNAPHTHOIC ACID Marent Intl 227 bgs (10,210 lbs) (Tobhai Maru) Nagoya, 7/28.

Ueno Fine Chemical Intl 1,180 bgs (58,486 lbs) (Ming Galaxy) Kobe, 8/1.

BETA NAPHTHOL Montedison 780 bgs (44,098 lbs) (Americana) Genoa, 8/1.

(44,287 lbs) (Americana) Genoa, 8/1.

BETA OXYNAPHTHOSAEURE Order 159 dms (33,834 lbs) (Kohn Express) Rotterdam, 7/29.

BISMUTH SUBNITRATE Award 10 dms (1,213 lbs) (Colombo) Barcelona, 8/7.

BITTER ORANGE ESSENTIAL Polorama Mlg 1 dms (421 lbs) (Sevensh) Santos, 7/28.

BLACK PEPPER Order 210 bgs (34,118 lbs) (Ever Goods) Singapore, 7/29.

BLANC FIXE POWDER Kalb Chemie 1,440 bgs (80,318 lbs) (Ever Gifted) Hamburg, 8/1.

Smith Chemical 720 bgs (40,159 lbs) (Ever Gifted) Hamburg, 8/1.

Richem Materials 720 bgs (40,159 lbs) (TFL Franklin) Bremenheraven, 7/28.

BLUE POPPY SEED Gal Splice 680 bgs (32,998 lbs) (Aldoban) Rotterdam, 8/2.

BORIC ACID GRUULAR BRACHAR 1,800 bgs (182,541 lbs) (Cape Haters) Leghorn, 7/30.

BRAZILIAN CLOVES East West Intl Trg 200 bgs (22,355 lbs) (Hangeo) Rio D Janeiro, 7/28.

BROMOTRICHLOMETHANE Cmt 3 tnk (4,259 lbs) (American Astronauta) Buenos Aires, 7/31.

BUTANE Order of Shipper 80,000 btt (1,080,000 lbs) (Mundogas Europe) Sullom Voe, 8/6.

BUTADIOL Order of Shipper 1,380 (490,396 lbs) (Stolt Rotterdam) Amsterdam, 8/5.

BUTYL ACETATE Janet Intl Fwds 78 dms (39,642 lbs) (TFL Franklin) Bremenheraven, 7/28.

BUTYL ZIRAM & ETHYL ZIRAM Prochemie Intl 727 bgs (41,902 lbs) (Atlantic Ocean) Liverpool, 7/28.

C-D

CADMIUM OXIDE Order 420 dms (46,167 lbs) (Starfield) Antwerp, 7/28.

CALCIUM FLUORIDE North American Phillips Light 84 dms (15,831 lbs) (Lale Maru) Kobe, 7/31.

CALCIUM OXIDE ALKYLAMINES ETC Viuma 8 cs (201,798 lbs) (Ever Gifted) Rotterdam, 8/1.

CALCIUM SILICON Aflaver 66 dms (39,288 lbs) (Ever Gifted) Hamburg, 8/1.

CARBON BLACK Cabot 58 bgs (5,071 lbs) (Americana) Genoa, 8/1.

CARBON GRAPHITE Gunze New York 11 pkg (1,027 lbs) (Lale Maru) Kobe, 7/31.

CARBON N J ACID Lysangeton Intl Freight 270 bgs (15,800 lbs) (Ever Goods) Hong Kong, 7/29.

CARNAUBA WAX Frank B Ross 440 bgs (44,872 lbs) (Baltig Bay) Fortaleza, 7/11.

CASENATE De Zaan 800 bgs (44,780 lbs) (Ever Gifted) Rotterdam, 8/1.

CASTOR OIL Almco Oil 1 bks (206,437 lbs) (Marical Jose) Faj, Santos, 7/28.

Order of Shipper 1 bks (211,443 lbs) (Marical Jose) Faj, Santos, 7/28.

CHILE OIL C Page 400 bgs (40,144 lbs) (Baltig Bay) Santos, 7/11.

CHINA CLAY Mores Feldman 80 bgs (88,637 lbs) (Ever Gifted) Felixstowe, 8/1.

CHLORACETIC ACID Order 1,584 bgs (179,041 lbs) TFL Franklin) Rotterdam, 7/28.

CHLORINE DYE BLEACH SODIUM DICHL ON 1118 dms (34,079 lbs) (Starfield) Felixstowe, 7/28.

CHLORODIFLUOROMETHANE Janet Intl Fwds 82 dms (38,488 lbs) (TFL Franklin) Rotterdam, 7/28.

CHLORODIFLUOROMETHANE Kal Chemie 1 tnk (39,688 lbs) (Americana) Barcelona, 8/1.

Order 2 tnk (73,526 lbs) (Nedloyd Rotterdam) Rotterdam, 7/29.

CHLOROPHENYLAMINE MALEATE USP Orbchem 14 dms (1,728 lbs) (Lale Maru) Tokyo, 7/31.

CHOLINE BITARTRATE Order 200 dms (38,546 lbs) (Americana) Bilbao, 8

[illegible]

UPE UNIVERSAL PROCESS EQUIPMENT, INC.

MAILING ADDRESS: BOX 338, ROOSEVELT, NEW JERSEY 08555
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OVER 15,000 PIECES OF PROCESS EQUIPMENT IN STOCK...CALL TODAY!

LATEST ADDITIONS

* HAST C * HAST C * HAST C *
10,000 GAL. HAST VERT. MIX TANK 60 PSI
4,000 GAL. HAST C REACTOR 125 AND 175
NEW 1800 SQ. FT. HAST C HEAT EXCHANGER

(2) Niagara mdl. 36 H 190 SS Pressure LF Filter,
190 sq. ft.
(5) 440 cu. ft. SS rot. vac. dryers comp. w/duat
collectors, condenser etc.

(1) 4000 gal. G/L reactor 100FV/150FV
(1) 6000 gal. SS reactor 70/175 psi, 1/2 pipe coil jkt.

48"x 24" TOLHURST SS "BATCHMATIC" CENTRIFUGE COMPLETE LATE MODEL STILL INSTALLED (6)

(2) 1200 TONS CARRIER CHILLER SYSTEM
2 LATE MODEL 6'x 61" RENNENBERG 304 SS
ROTARY DRYERS COMPLETE & (3) 5'x25'
NASH VACUUM PUMP SYSTEM MDL. CL 3001
AND MDL. 9001 COMPLETE WITH MOTOR &
ACCESSORIES

10,000 TON/YEAR MALEIC ANHYDRIDE
PLANT
2 DRAIS 30 HP & (2) 75 HP SAND MILLS SS
12"x 30" & 24"x 38" SS S/B CENTRIFUGE
2 SS NIAGARA 42-310-22 VERT. LEAF FILTERS
CUMBERLAND PELLETIZERS 8" & 6" (7)
30 CU. FT. 316 SS DBL. CONE VAC. DRYER
36 SQ. FT. LUWA THIN FILM EVAPORATOR

6,500 GAL. INCONEL REACTOR, 60 PSI, AGIT.
2,000 GAL. 316SS REACTOR, 1000/100 psi
1,300 GAL. 316SS REACTOR, 150 FV/125 PSI

4000, 5000, 6000 GAL. AGITATED
REACTORS VERY ATTRACTIVE PRICES

CORN SYRUP/STARCH PLANT

200,000 lbs/HR @ 300 psi st. boiler
150,000 lbs/HR @ 700 psi pkg. st. boiler
80,000 lbs/HR @ 250 psi pkg. st. boiler
8"x30" 304 SS rot. hot air dryer
8"x30" 304 SS rot. hot air dryer
4"x21" 72 tube SS rot. st. dryer
24,000 sq. ft. triple effect evap. Ti tubes
600 sq. ft. U.S. Autotjet filter cellcote ind (3)
500 sq. ft. Hercules 316 ELC pr/H filter (4)
12"x15" Elanco belt CS rot. filter (2)
7"x10" Elanco 316 SS precoat filter (2)
8"x10" Elanco 316 SS precoat filter (2)
500 sq. ft. 316 SS plate ht. exch.
285 sq. ft. APV 316 SS plate ht. exch.
Ducan SS wet scrubber 11500 cfm
20,000 gal 316 SS V mix tank 13"x20"
9,000 gal SS vert. mix tank 13"x8"
7,000 gal 316 SS V cone botm. tank 10"x8"x9"
6,500 gal 316 SS V cone botm. mix tank 12"x8"
5500 gal 316 SS V mix tank 12"x8"
3000 gal SS V mix tank 9"x6" (3)
3000 gal 316 V vac. tank 15 psi/FV
PLUS MANY MORE ITEMS CALL FOR DETAILS

HEAT EXCHANGERS

Q.F.T.	MATERIAL	Q.F.T.	MATERIAL
14,615(UNUSED)	TITANIUM	1,400(UNUSED)	304SS/304SS
12,250(UNUSED)	CS/304SS	1,166	TITANIUM
9,134	304SS/304SS	1,024(UNUSED)	SS/PLATE (2)
8,210	CS/304SS	983	TITANIUM
7,775(UNUSED)	304SS(8)	785(UNUSED)	CS/304SS
4,840(UNUSED)	CS/304SS	808	304SS/304SS
3,600(UNUSED)	GRAPHITE	586(UNUSED)	CS/304SS (2)
3,498(UNUSED)	304SS	481(UNUSED)	CS/304SS
2,721	C/S GRAPH	482(UNUSED)	CS/304SS
2264	TITANIUM	300(UNUSED)	CS/304SS
2200(PLATE)	TITANIUM	292(UNUSED)	CS/SS (5)
2,000	304/304SS	275	316SS/316SS
1812	TITANIUM	200(UNUSED)	SS/SS

VARIOUS GRADES OF STAINLESS STEEL AVAILABLE
UP TO 24,000 SQ.FT. MANY UNUSED,
ALL MATERIALS & PRESSURES

4 PASSAVANT MDL. 200
VAC-U-PRESS BELT FILTERS
250 SQ. FT.

COMPLETE PLANT SITE FOR SALE

Former Synthetic Gas Plant. 60 acres
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in mid 70's. Complete with all im-
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line transmission. We will sell entire
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gen plant

(4) 150,000 LB/HR 620 psi Boilers
complete with Demineralizer sys-
tems

(2) 2500 KVA Generators
Emergency Turbine Generator Solar
Centaur 3700 HP complete

100's of Heat exchangers-CS and SS
up to 15,000 sq. ft.

100's of Pumps and Compressors
100's of Tanks - both atmospheric
and pressure

CALL FOR DETAILS!

19,000 GAL. 316 SS
FERMENTATION SYSTEM

GLASS * GLASS * GLASS REACTORS

3,000 GAL. DEDIECHT, 100/90, PHILA. DRIVE
3,000 GAL. RA SERIES, 100/90 TW, REGLASSED
2,000 GAL. RA SERIES, 100/90 TW, REGLASSED
1,000 GAL. RA SERIES, 100/90 TW, REGLASSED
1,000 GAL. E SERIES 25/90 (4)
750 GAL. 25/90 TW (2)
500 GAL. RA SERIES, 100/90, TW
400 GAL. E. SERIES, 25/90, TW
300 GAL. E. SERIES, 25/90, TW
200 GAL. E. SERIES, 25/90 REGLASSED, TW
100 GAL. E. SERIES, 25/90, TW

OVER 100 GLASS LINED REACTORS IN STOCK GLASS LINED TANKS

FROM 5-22,000 GALLONS
TRAILER LOADS OF GLASS LINED PARTS AVAILABLE
* LOU FALCONE-OUR G/L SPECIALIST WITH 21 YRS.
EXPERIENCE IS HERE TO HELP YOU *

FILTERS

12"x15" "EMCOBELT" ROTARY VAC. FILTER SYSTEMS (2)
8"x20" EMCO, 316SS, HORIZ. VAC. BELT EXTRACTOR
8"x14" EMCO, 316SS, PRECOAT ROTARY VAC. FILTER
8"x12" AMETEK, 316SS, ROTARY VAC. FILTER, 300 SQ.FT.
8"x9" AMETEK, 316SS, ROTARY VAC. FILTER, 137 SQ.FT.
8"x21" EMCO POLYPRO EXTRACTOR SETTLERS (3)
4"x20" ST. LINE HORIZ. VAC. BELT FILTER SYSTEM
12"x 13" EMCO H. BELT EXTRACTOR
48" SHRIVER ALP POLYPRO CGR FILTER PRESS, 57 CHAMBERS
48" POLYPRO REC. P/F AUTO FILTER PRESS
42" DURCO QUADAPRESS MDL QF-42/20-55, POLYPRO

DUST COLLECTORS

SS & CS, PULSE JET AND SHAKER TYPE
400-112,000 SQ.FT.

WE HAVE OVER 700 SS TANKS
IN STOCK

CALL NOW ABOUT GIANT RHODE ISLAND & NEW JERSEY LIQUIDATION ALL EQUIPMENT STILL INSTALLED

(89) Glass lined & SS Reactor systems
complete with condensers, receivers
and control panels. from 50 gal. to
4000 gal.

(40) Filter Presses polypro & SS from
18" to 56" plate and frame recessed
plates.

(25) Vacuum dryer systems complete
with condensers, vacuum pumps and
receivers.
Double Cone: glass & SS.
Rotary 316 SS vacuum dryers
Vacuum Shelf SS and Hercules lined.

(18) Centrifuges 316 SS automatic bar-
ket centrifuges complete with control
and nitrogen purge
Scrubber systems/Vacuum filter sys-
tems/Glass lined and SS tank farm.

MUCH MORE !!!
WE WANT TO BUY YOUR
SURPLUS EQUIPMENT, PROCESS PLANTS
AND COMPLETE PLANTS. WE HAVE
OUR OWN DISMANTLING CREW

RIGGING/DISMANTLING DEMOLITION/ASBESTOS REMOVAL

WE ARE EXPERTS AT DISMANTLING,
REERECTION, RIGGING DEMOLITION
AND ASBESTOS REMOVAL WITH TER-
RIFIC REFERENCES BOTH NATIONALLY
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CALL US TODAY FOR A QUOTATION
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DRYERS

Drum Dryers/Flakers
(1) 24" dia. x 36" Buffalo SS dbl. drum
dryer
(2) 32" dia. x 108" Blaw Knox CI dbl. drum
dryer
(1) 32" dia. x 17'6" Sandvik SS belt flaker
(1) 36" dia. x 10' Buffalo CI dbl. drum dryer
(1) 42" dia. x 20' Blaw Knox CI dbl. drum
dryer
(1) 48" dia. x 28" drum flaker, chrome plated
steel
(1) 48" dia. x 40" CI flaker, mtg. by Buffalo
Foundry
(1) 48" dia. x 40" drum flaker, nickel plated
steel, Blaw-Knox

Fluid Bed
(1) 60 K. Aeromatic, Batch, 6'x9", 56,000
100 K. Aeromatic Model ST 100, sanitary
(1) Flamatric Model FA 250, SS, 20 HP XP

Holofite
(1) Western Precipitation Model P80SSO-A,
win screw, 12" dia. x 20" long, SS constr.,
jacket, rated 15 psi, complete with 7.5 HP
motor-drive.
(1) New/Haven Used Joy Processor, CS, single
screw, 18"x18" long, rated 110 psi @ 340°
F., sprocket & chain drive by 1.5 HP
motor-drive.

Rotary Vacuum
(1) 200 Cu. Ft. Stokes, SS constr., complt.
(1) 180 Cu. Ft. Pfaudler, Double Cone, G/L, 30
HP/70 psi jkt., 18 HP vari-drive
(1) 180 Cu. Ft. Blaw Knox, Nickel
(1) 180 Cu. Ft. Stokes, Nickel
(1) 72 Cu. Ft. Blaw Knox, SS
(1) 60 Cu. Ft. Titanium Double Cone
(1) 60 Cu. Ft. Gemco, 316SS sanitary, double
cone
(1) 37.5 Cu. Ft. Horiz. Thin Film, vac. int. & 150
psi, 304/316SS
(1) 60 Cu. Ft. P-K Twin Shell, 304SS
(1) 20 Cu. Ft. Abbe Twin Cone, 304SS

Spray
(1) 30"x32" Bowen Laboratory w/3" cone bot-
tom, SS constr., w/centrifugal atomizer, 3
HP motor & heater (1)
(1) New lab size 32" dia. x 2" w/2" cone w/centrif.
atomizer SS constr.
(1) 710" Dia. Anhydro Complete System,
sanitary SS
(1) 18" dia. Bowen complt. system SS con-
str., new 1976

CENTRIFUGES

(1) Federal BRPX 300, SS, 20HP
(1) Unused Model S-10 Potbielink, Alloy 20
(1) Sharples AG-26, SS
(1) Sharples AG-10P, 316SS
(1) W-4 Level SS Decanter, Horiz., MDL NX314
(1) Dorr Oliver Mod. CH30 CSU "Morco," 316SS
contacts, 160 HP
(1) Baker Perkins S-52 "Pusher Type" SS, 50 HP
(1) Red 24"x32", 316 ELC, contour bowl.
(1) Red 24"x32", 316SS, 40 HP
(1) Sharples P-3000, 316SS, 30 HP
(1) Sharples P-1000, SS 20HP
(1) Unused Bird 30 186, 317L SS

(1) Tolhurst 48" x 24" perf. basket, 316SS
sanitary, auto. plov & discharge, rated 85
f.cu. ft. @ 900 RPM, 20 HP XP
(1) Tolhurst 48" x 24" Batchmaster, 316SS, perf.
basket, w/hydr. plov & 20 HP hydr. drive
(1) Tolhurst 48" x 24" Batchmaster, rubber lined,
perf. basket, w/hydr. plov & 20HP hydr. drive
(1) Tolhurst 48" x 24" Batchmaster, Hercules
lined, perf. basket, w/hydr. plov & 20 HP
hydr. drive
(1) Western states 48" x 24", 316 SS
(1) Fletcher 48" x 28" Suspended type, SS perf.
basket, 20/10 HP
(1) Sharples Tornado 48" x 30", 316SS, perf.
basket, 40 HP XP
(1) Alfa Laval Model MAPX 210 T24, SS wetted
parts
(2) Sharples C-27, 316 SS, wetted parts, 40 HP
(1) Sharples C-20, Super-D-Hydrator, SS, 30 HP
(1) Dorr Oliver Mercone Boreman Model C-400 X2,
SS, twin screw design, 10 HP

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6650 SCFM Thermo Energy Recovery System

EVAPORATORS

(1) 1 Sq. Ft. Artisan "Kontro" Alfa-Laval sys., 316SS
(1) 1.4 Sq. Ft. Luwa Wiped Film, 316SS, 1.5 HP
(1) 1.4 Sq. Ft. Luwa Thin Film SS
(1) 1.5 Sq. Ft. Rodway Hunt Turbo Film 347 SS
(1) 5.4 Sq. Ft. Luwa Filmtruder, 316 SS
(1) 6.54 Sq. Ft. Volator Evaporator System, 316 SS constr., 15
psi & FV int., 150 psi jkt.
(1) 1.7 Sq. Ft. Rodway Hunt Turbo-Film, 304 SS constr. parts, 15
psi & FV/150 psi jkt.
(1) 10.8 Sq. Ft. Luwa SS Wiped Film Exp. System, 15/650 psi
(1) 18.5 Sq. Ft. Volator Turbo-Film, 304 SS, SS FV/150 psi
jkt.
(1) 20 Sq. Ft. Kontro Horiz. Adjust-O-Film, 316ELC, 50 psi, 15
HP
(1) Approx. 31 Sq. Ft. Vert. Turbo-Film Processor, 304 SS
Contacts
(1) Like New 37.8 Sq. Ft. Luwa Horiz. Thin-Film Dryer, 304/316L
SS
(1) 40 Sq. Ft. Kontro Adjust-O-Film, SS constr., 20 HP
(1) 47 Sq. Ft. Artisan Ring Film, Heat "C"
(1) Approx. 51 sq. ft. Pfaudler Wiped Film, 316 SS, 100/85 & FV
40 HP
(1) 80 Sq. Ft. Kontro Wiped Film Syst., SS constr., FV/150 psi
jkt.
(1) UNUSED 85 sq. ft. Luwa Thin Film dryer horiz. 316 L wetted
parts, FV int., 150 psi seal steam jkt.
(1) 141 Sq. Ft. Rodway Hunt Turbo-Film, 316 SS 15 psi int., 35 psi
jkt 40 HP XP

TANKS-ALL TYPES & SIZES

BLENDEES

800 Cu. Ft. Jkt. Dbl. Cone, CS
Approx. 480 Cu. Ft. CS, 70HP
UNUSED 400 Cu. Ft. Marion Paddle, CS, 75 HP
300 Cu. Ft. CS Dbl. Cone, 30 HP
200 Cu. Ft. K8 316SS Dbl. Cone
178 Cu. Ft. P-K Twin Shell, 316SS
100 Cu. Ft. CS Dbl. Cone, 7.5 HP
63 Cu. Ft. Marion Riddle, CS
60 Cu. Ft. 304 SS P-K Twin Shell w/int. bar
60 Cu. Ft. CS Dbl. Cone, 304SS
30 Cu. Ft. P-K 304 SS W/Hg. bar
30 Cu. Ft. P-K, Twin shell SS
10 Cu. Ft. CS Dbl. Cone, 304SS
10 Cu. Ft. P-K, Twin shell SS
10 Cu. Ft. W.C. Marion SS
10 Cu. Ft. Gemco dbl. cone, CS 11HP
10 Cu. Ft. S-S Dbl. Cone W/liquid-seal bar
8 Cu. Ft. SS Dbl. Cone W/liquid-seal bar
6 Cu. Ft. P-K Twin Shell, SS constr., w/psi int. bar
10" P-K 210 225

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Propane Storage System
120,000 gal. Capacity Propane
Storage System consisting of
2-80,000 Gal. Propane Tanks,
Compressors, Pumps

400 gal. G/L Pfaudler Vert Re-
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1750 gal. Reactor, 316 SS, 15 Psi
Int. 40 psi Jckt.
St Regis Bag Packer, Model #718
MLT
6000 Gal. 304 SS Jckt. Mix
Tank
2 dia. x 3' Chrome Plated Flaker

Alfa-Laval Centrifuge, Model
NX214/314
8000gal. CS, Ammonia Storage
Tank, 250 PSI
75 gal. Green Kettle, SS Single
motion, 125 Psi Jckt.

SS FILTER ROMANZA w/
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Glass Lined
4,000 Gal. Pfaudler, 100/90 psi, TW
1,000 Gal. Pfaudler, 100&FV/90 psi,
4RW
1,000 Gal. Pfaudler, RA60 Series, 100&
FV/90 psi, 4TW
800 Gal. SS clad, 60/60 psi
750 Gal. DeDietrich, Phila drive
500 Gal. Pfaudler, 100&FV/85 psi, BH
drive
75 Gal. Pfaudler, 25 & FV/85 psi, 2 HP
50 Gal. Pfaudler Body-UNUSED, 25 FV/-
100psi
* Partial Listing - Much More Inventory
Glass Lined Storage Tanks & Parts
also Available.

Stainless Steel
4,000 Gal. 316SS, Atmos./60 psi, with coils
3,000 Gal. 347SS Blaw Knox, 150/50 psi
2,600 Gal. 316L SS, 75/75 psi, 150 psi int. coils
2000 Gal. Nooter Autoclave, 316L 2000
psi, FV int. coils
2,000 Gal. Dusenberry, 316 SS, 15/35 &
FV int., 50 psi jkt.
1,750 Gal. 316SS SS, 1467/50 psi
1,500 Gal. 304SS, 10 HP Lightnin'
1,000 Gal. 304SS, 250/90 psi
1,000 Gal. 316SS, 50/75 psi jkt
750 Gal. 316SS, 75 & FV/50 psi
750 Gal. 304SS, 50/60 psi
600 Gal. 316SS, 300psi, 10 HP
600 Gal. SS, 50 psi, 1.5 HP XP
500 Gal. 316SS, 55 & FV/55 psi
100 Gal. 316SS, 15/50 psi
100 Gal. 316ELC SS, 500/90 psi

4.5 Gal. Kneader Master Conl., SS w/kjt.
5 Gal. AMK 304SS Jckt. Kneader Extender
15 Gal. W.C. Resco Sigma Blade Dbl. am
25 gal. Resco Dbl./Arm Sigma Blade Jckt. SS
construction 15 HP
80 Gal. Hookmeyer Pony, SS constr., 7.5 HP
100 Gal. SS, Sigma Blade, Jckt. 40 HP
500 liter Welex hi intensity, SS constr. parts
250 gal. W-P CS dble arm Sigma blade, 20 HP
250 gal. AMK Kneader Extruder, Sigma
Blade, CS constr., 40 psi, trough jkt.
600 Gal. S-W Rubber Cement, CS, 2-10 HP
motors (2)
Unused 1000 Gal. Sanitary 316SS B-K Dbl. Motion
Change Can, 100&FV/155 PSI, 125HP
Littleford Model PKM-6000, SS
Littleford Model PKM-2000, SS, w/choppers
Littleford Model FM 100 Sanit. SS w/choppers
Proder Fenchel 3.5 Cu. Ft. Mtd. SS J 85 SS Const.
7 Cu. Ft. 304SS Nauta Model MBX-70
10.6 Cu. Ft. Nauta D-105, CS
15 HP Hookmeyer High Speed Dispenser
10 HP Hookmeyer High Speed Dispenser
Welding Eng. Model 2FV128 Twin screw
Extruder, 180 psi

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4-DRAIS SAND MILLS, TYPE PM-80,
STS-DBA, MANUFACTURED 1984-85.
PRICED TO SELL - CALL FOR DETAILS

MIXERS

4.5 Gal. Kneader Master Conl., SS w/kjt.
5 Gal. AMK 304SS Jckt. Kneader Extender
15 Gal. W.C. Resco Sigma Blade Dbl. am
25 gal. Resco Dbl./Arm Sigma Blade Jckt. SS
construction 15 HP
80 Gal. Hookmeyer Pony, SS constr., 7.5 HP
100 Gal. SS, Sigma Blade, Jckt. 40 HP
500 liter Welex hi intensity, SS constr. parts
250 gal. W-P CS dble arm Sigma blade, 20 HP
250 gal. AMK Kneader Extruder, Sigma
Blade, CS constr., 40 psi, trough jkt.
600 Gal. S-W Rubber Cement, CS, 2-10 HP
motors (2)
Unused 1000 Gal. Sanitary 316SS B-K Dbl. Motion
Change Can, 100&FV/155 PSI, 125HP
Littleford Model PKM-6000, SS
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Littleford Model FM 100 Sanit. SS w/choppers
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7 Cu. Ft. 304SS Nauta Model MBX-70
10.6 Cu. Ft. Nauta D-105, CS
15 HP Hookmeyer High Speed Dispenser
10 HP Hookmeyer High Speed Dispenser
Welding Eng. Model 2FV128 Twin screw
Extruder, 180 psi

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ATTENTION WEST COAST BUYER
Unused 15,000 Gal. Vert. T304SS Tanks 1' Dia x 14' H, Dish Bottom, Flat Top 4" CBO. Skirt Mounting, (4)

FILTER-ROTARY VAC.
15028-EE Inc. 36" dia x 12" S/S, string disc, 1/2 HP.
17477-EE Inc. 3' dia x 6", T316SS, belt disc, vac pump.
11177-Dorr Oliver S/S, 6' dia x 8' H.
19431-K.S. flexibel, 6' dia x 6' face, 316SS.
18392-Emco belt filter, 8'x10', steel drum, w/NaOH pumps.
15827-Ametek, 6' dia x 14' face, max-belt, S/S.
17838-Emco, 316SS, 10' dia x 14', knife discharge.
17283-Imco belt filter, 12' dia x 12', 304SS, NaOH vacuum.
20251-K.G. T304, vacuum filter, 12' dia x 14', 304SS.
20233-Dorr Oliver 11'x18' face, S/S cont. parts.
11488-Emco 10'x10' rotary vac. filter.

DRYER-ROTARY VAC.
19844-Balliethe Porcupine Processor/Polyester Chip
Crystallizer 30" dia x 18' long, T304SS, 20 HP (8).

FILTER PRESSES
19846-Shriver P&F filter press, 12"x12" alum. plates, closed delivery, 23 chambers.
20534-Sperry Filter Press, 30", alum.
20539-Sperry filter press 30", 35 Aluminum plates, 357 sq. ft. 15370-Shriver 32" x 32", polypropylene, 27 plates, ratchet closing.
15929-Shriver ALP, plate & frame, 18" x 36", S/S re-cessed plates.
20076-Sperry filter press, 36", cast iron plates, closed deliv.
19482-Independent filter press, 42" x 42", polypropylene, 4 eye closed, 34 chambers.
20550-Sperry filter press, 42" End closer, 41 alum. plates.

CENT-BASKET VERT.
21408-Devalvel 22" x 18" perf. basket hyd. drive.
15816-Devalvel Mark II perf. basket, 40" x 24", 316SS, 30 HP, hyd. drive.
19448-Sherpale Sludge-Pak, SP-5500, 40" x 24" basket centrifuge.



REACTORS
20252-Union Reactor, 600 gal., 304SS duple jkt.
10136-Plauder, 800 gal., T-3161, SS, 55 PSI w/150 PSI.
20828-Brighton, 4000 gal., 6' dia x 10', 316 ELC S/S.
20456-Reactor, 4000 gal., 6' dia x 10', 316 ELC S/S.
15475-Brighton, 4000 gal., 316SS, vacuum.
20287-GH Hicke, 4000 gal., 316 SS, pipe coil jkt.
20823-Richmond Eng. Reactor, 4000 gal., T316 stainless steel.
Plauder 10,000 gal. reactor T316, 100 psi int., 180 psi. Plauder 15,000 gal. reactor T316, 100 psi int., 200 psi jkt.

TANKS-S/S
21289-Tank, S/S vert., 1200 gal., 6' dia x 8', flat top & bot.
20651-Tank, SS, 9000 gal., eqt., 12' dia x 14' H.
20655-Tank, SS, 12000 gal., 12' dia x 14', flat bottom, open top.
17043-Jos Oat horz. tank, 304SS, 18,000 gal., 12' dia x 22'9 1/2" long, 10 PSI.

DUST COLLECTORS
21125-Pabst-Jet J50S-45 bin vent, 42 sq. ft.
16386-Mikro dust collector, S/S, 63 sq. ft., mdl. 9-8-100, pulse jet.
21153-EVO, bin vent, 72 sq. ft., S/S, 5 HP.
20253-Union EVO pulse jet collector, mdl. 84BF009C, 90 sq. ft.
21182-JH Day mdl. FR-16RJS, 125 sq. ft., CS, 3 HP.
21222-Fabril-Jet, mdl. S018-50, 151 sq. ft.
20398-Pulse jet collector, "Flexitron", mdl. 68CT24 AV II w/175 sq. ft. cloth, C.S.
21286-Mikro dust collector, 265 sq. ft., S/S.
20856-Union EVO Corp. pulse jet dust collector, mdl. 88F030C, 350 sq. ft.
20255-Union EVO Corp. dust collector, shaker type, mdl. MS049C10, 575 sq. ft.

SCREENS
21203-Sprout Waldron after, D10, 6 decks.
21150-Sprout Waldron, D10, 1 HP, 10 decks, S/S cont.
21167-Sprout Waldron, D10, 2 HP, 10 decks, S/S cont.

MIXERS - PLOW
603755-Littelford, PKM 9000, SS jacketed, 25 HP.
20754-Littelford, PKM 30000 SS CF, S/S, 1/4 jacket.
18214-New Flow Mixer, 8000 cu. ft. 347SS, jacket, 100 HP.
20829-Littelford PKM 42000, S/S, 87 cu. ft. JKT.

MIXER RIBBON
21120-Ribbon Blender, S/S, 10 cu. ft., jkt. SS, 150 psi.
20278-Ribbon Blender, 14.7 cu. ft., 304SS, 3 HP.
20818-Union Day, 316SS, 23 cu. ft., 8 HP.
20189-Robinson, 25 cu. ft., S/S, jacket, 10 HP.
20885-104 cu. ft. S/S dia. ribbon, 6 HP (4)
20215-Hess ribbon, 36 cu. ft., S/S, 15 HP.
19283-Ribbon Mix 80 cu. ft. T304 SS, 5 HP (4)
19588-Howe, 115 cu. ft., sanitary S/S, double spiral ribbon.
20883-Strong Scott blender, 130 cu. ft., 304SS, 25 HP gear motor.
21184-Ribbon Blender, 304SS jkt., 180 cu. ft., 30 HP.
20814-Union JH Day ribbon, S/S 270 cu. ft., 25 HP.
21114-JH Day ribbon blender, S/S eqt., 717 cu. ft., 400 cu. ft.

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ALL EQUIPMENT STORED IN WAREHOUSE, ON ORIGINAL SKIDS
LOCATION: SPRING GROVE, SOUTH CAROLINA

21717-Sims, 6'x6' cu. ft., 500 gal., 58" dia. (8)
21718-Sims, 504SS, 400 cu. ft., 650 gal., 58" dia. (10)
21719-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21720-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21721-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21722-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
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21790-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
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21797-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21798-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21799-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)
21800-Sims, 504SS, 1200 CF/6700 gal., 118" dia. (8)

UNUSED LATE MODEL EQUIPMENT AT LOW LOW PRICES CALL NOW (312) 350-2200

PLANT LIQUIDATION: CELLULOSE FIBER BUY FROM CHARLESTON S.C. LOCATION AND SAVE

2114-JH Day ribbon blender, 58 eqt., 75 HP, 480 cu. ft., S/S.
21227-Shrink wrap oven, heat constant, 12' x 12' x 12' H, 100 cu. ft.
21194-Pittman D1000, 5/8" dia, 7.5 HP.
21220-Mikro Mill, 75 HP w/1 speed drive.
21228-Mikro Mill, 75 HP w/1 speed drive.
21229-Mikro Mill, 75 HP w/1 speed drive.
21230-Mikro Mill, 75 HP w/1 speed drive.
21231-Mikro Mill, 75 HP w/1 speed drive.
21232-Mikro Mill, 75 HP w/1 speed drive.
21233-Mikro Mill, 75 HP w/1 speed drive.
21234-Mikro Mill, 75 HP w/1 speed drive.
21235-Mikro Mill, 75 HP w/1 speed drive.
21236-Mikro Mill, 75 HP w/1 speed drive.
21237-Mikro Mill, 75 HP w/1 speed drive.
21238-Mikro Mill, 75 HP w/1 speed drive.
21239-Mikro Mill, 75 HP w/1 speed drive.
21240-Mikro Mill, 75 HP w/1 speed drive.
21241-Mikro Mill, 75 HP w/1 speed drive.
21242-Mikro Mill, 75 HP w/1 speed drive.
21243-Mikro Mill, 75 HP w/1 speed drive.
21244-Mikro Mill, 75 HP w/1 speed drive.
21245-Mikro Mill, 75 HP w/1 speed drive.
21246-Mikro Mill, 75 HP w/1 speed drive.
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CHEMICAL PROFILE

PHOSPHORIC ACID

SEPTEMBER 8, 1986

SUPPLY

PRODUCER	CAPACITY*
Agrico, Donaldsonville, La., South Pierce, Fla.	870
Arcadian, Gelsmar, La.	165
Bartow Chemical, Bartow, Fla.	414
Baker Industries, Taft, La.	525
CF Industries, Plant City, Fla.	675
Chevron, Rock Springs, Wyo.	200
Conserv, Nichols, Fla.	200
Farmiland, Green Bay, Fla.	255
Fort Meade Chemical, Fort Meade, Fla.	470
Freeport, Uncle Sam, La.	800
Gardiner, Tampa, Fla.	720
W.R. Grace, Bartow, Fla.	210
IMC, New Wales, Fla.	1,700
Mississippi Chemical, Pascagoula, Miss.	225
Mobil, Pasadena, Tex., Depue, Ill.	365
Occidental, White Springs, Fla.	1,086
Royster, Mulberry, Fla.	208
J.R. Simplot, Pocatello, Idaho.	350
Texasgulf, Lee Creek, N.C.	1,270
Total	10,688

*Thousands of short tons annually (P₂O₅ basis) of wet process phosphoric acid. Arcadian acquired its facility from Allied in a June 1984 leveraged buyout. Amex idled its 175,000-ton, Piney Point, Fla., facility in January 1985. The company is currently negotiating sale of the plant to FCS Energy. Bartow Chemical and Fort Meade Chemical are joint ventures between US Diversified Group and W.R. Grace. Baker idled a 315,000-ton facility in Conda, Idaho, in March. The company expanded its Taft plant by 70,000 tons in 1985. Baker is currently in Chapter 11 status. CF Industries' 700,000-ton, Bartow, Fla., facility is idle indefinitely. Farmiland recently restarted 255,000 tons of capacity and has an additional 318,000 tons of capacity idle at its Green Bay site. Hydrite Chemical's 8,000-ton per year plant will be permanently closed in early 1987. Conserv, a subsidiary of Montedison's Agrimont, was acquired from Intercontinental Development Corporation this year. J.R. Simplot idled a 125,000-ton facility in Helm, Idaho last year. The company improved its Pocatello facility by 220,000 tons as of January. Chevron closed its 69,000-ton Salt Lake City plant early this year and has recently opened the 200,000-ton Rock Springs, Wyo. unit. Texasgulf increased its capacity at Lee Creek by 250,000 tons in January of 1985. High-purity phosphoric acid, produced in a furnace process for primarily non-agricultural purposes is made by the following: FMC, Green River, Wyo., Lawrence, Kans., Newark, Calif., and Cartaret, N.J., 405,000 short tons annually on a P₂O₅ basis; Monsanto, Kearney, N.J., Augusta, Ga., Long Beach, Calif., St. Louis, Mo., 315,000 short tons; Occidental, Columbia, Tenn., Jeffersonville, Ind., Dallas, Tex., 121,000 short tons; Albright & Wilson, Charleston, S.C., Fernald, Ohio, 53,000 short tons. Profile last published 7/18/83; this revision, 9/8/86.

DEMAND

1985: 10.1 million short tons; 1986: 9.4 million short tons; 1990: 10.9 million short tons.

GROWTH

Historical (1976-1985): 3.5 percent per year; future: 1.5 percent per year through 1990 (includes a 7 percent downturn in 1986).

Continued on Page 22

PLATFORM

Managing Bhopal

Following are excerpts of remarks by Warren M. Anderson, chairman of Union Carbide Corporation, at the International Conference on Industrial Crisis Management at New York University, September 5, 1986.

The textbooks tell you to sit tight in a crisis until all the facts are in. The CEO, they suggest, should confine himself to strategizing, and send his emissaries to the scene. And no doubt that's a good approach in some situations.

But in our case, what I regarded as the controlling facts were already known when I left for India. A massive escape of toxic material had occurred at a plant owned by a company with Union Carbide in its name. The consequences of that toxic release were so devastating that something had to be done at once.

When confronting problems of any size and scope, business people are prone to marshal the skills and resources at their disposal and try to solve them. It's a reflex, and it's one I wouldn't change, whether the problem is across the road or around the world.

And if ever that approach was needed it was in Bhopal. It was essential to act, not to wait for emissaries to verify that what we saw on television and read in the newspapers actually happened. In this situation especially, with all the complications of distance, and the devastation felt by our Indian affiliate, someone had to be on the scene who could act without waiting for the usual approvals. In a major corporation, that means the CEO.

What happened of course was that I was arrested and briefly detained. It's clear that the state authorities had another agenda. And it did not include a partnership with Union Carbide to try and ease the problems.

But if I had it to do over, God forbid, I would go again because the responsibility to be on the scene in that kind of calamity belongs to the CEO and no one else.

The rejection I met with also manifested itself in other ways — in the constraints on our investigating team, which was not allowed to talk to anyone in the plant, and in the harsh comments by the local press.

But these problems simply added to the other ones we faced. Let me touch on a few that I think any company must deal with in a crisis.

First of all, even when a crisis grabs the attention of the world, and demands the full attention of the CEO and the Board, it's essential to carry on the main business of the organization.

Carbide is a big store to mind. Our agricultural products business accounted for less than six percent of total 1985 sales of over \$9 billion. The actual production from Bhopal represented only a fraction of that six percent. But unless people focused on the other

94 percent, the whole machine could have ground to a halt.

To isolate the incident as best we could, I gave the job of running the business to others while I formed and led a crisis management team composed of people from law, finance and public affairs.

That was done within hours after the news broke. We announced that Bhopal-related matters were for that team only, leaving everyone else free to concentrate on the business. It's not a perfect arrangement. The crisis was bound to be a powerful distraction. The matter that we did, but we let people know that insofar as possible, it was business as usual at Union Carbide. Our people came through, and happily for us, so did our customers.

Another top priority was communication with the financial community. What they worried about was a management structure suddenly and massively diverted from its work of improving our financial performance to dealing with the crisis.

On top of that, the Johns Manville bankruptcy had left a strong impression at Wall Street. Although our own situation was in no way comparable to Manville's, we could not avoid the comparison.

Our own people were another key constituency for our crisis communications. Many could hardly believe that a Carbide facility was involved. The first thing they wanted to know was how they could help where they could send money to aid the victims. A lot of people sent messages of support to me, and I can tell you they meant a lot.

Our people were also concerned. What did this mean for Carbide's future? What about their jobs? How about the retirement fund? And there was the very basic question: What does this say about my employer and how should I feel now about my association with Union Carbide?

But our most immediate concern was the victims in the City of Bhopal and what we needed to do help them. A close second was the need to calm the fears of our neighbors in Carbide plant towns, especially at our MIC manufacturing operation at Institute, West Virginia.

So within 12 hours after we learned about Bhopal:

—We dispatched a medical and technical team to Bhopal to arrange for immediate and longer term relief for the victims, to investigate the incident, and to assist with the safe disposal of the remaining MIC supplies at the plant.

—We shut down the MIC operation at Institute, and began converting supplies of MIC at other plants in Georgia, France, and Brazil into finished pesticides. And we recalled MIC shipments in transit overseas.

—And we also held our first press conference knowing that for many of the people the press wanted, we would have to say we just didn't know.

JOBS & PEOPLE

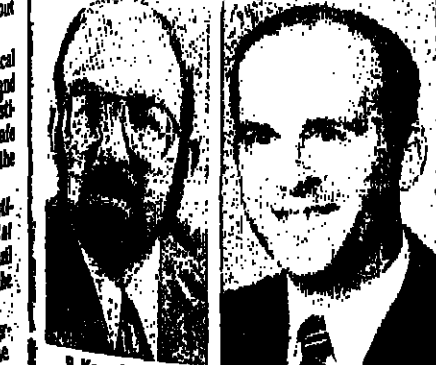


A.P. Flinn, who has been appointed vice-president and assistant general manager of National Office & Chemical Corporation's USI Chemicals unit.

ROBERT KERSCHNER has been named regional sales manager at Chemos Corporation. RUSSELL D. SPAHR has been appointed marketing manager at PMP Fermentation Products Inc. PHILIP A. DUTERME has been named president and chief executive officer of Duphar Nutrition Inc.

WILLIAM J. JENKINS has been appointed vice-president of human resources at BASF Corporation's Inmont Division. JOSEPH SCROPPA has been named general manager of Interbia, a division of International Blue-Chemicals Group. LAURIE BLAIR has been appointed account executive at PPF International Inc., responsible for fragrance sales in the Midwest.

THOMAS W. ARMSTRONG has been named to the newly created position of director of loss control at Alcoa Industrial Gases and Alcoa Welding Products, division of BOC.



R. Kerschner R. Spahr

RTZ Chemicals Names Development Managers

RTZ Chemicals Ltd. has appointed Dr. Chris Sghibartz and Dr. Allen Barnatt business development managers.

Dr. Sghibartz' research and development responsibilities will focus on specialty monomers, organo-metallics and electronic chemicals.

Dr. Barnatt will focus on the application and development of existing technology, with emphasis on polymers.



C. Sghibartz A. Barnatt

Group Inc. JAMES T. GRAHAM has been appointed Midwest district sales manager for the Plating Division of M&T Chemicals Inc.

DAVE WESTMAN has been named vice-president and general manager of American Thermoplastics Corporation, a Houston-based subsidiary of Phillips Petroleum Company. JERRY JARDING has been named sales in the Midwest.



P. Dutorme W. Jenkins

polypropylene sales manager for the Plastics Division of Phillips 66 Company. DON SCHULTZ has been appointed pricing and supply director for the Plastics Division and GARY SCHOLLER has been named export sales and supply director of the division.



H. Brech Kaufman, who has been appointed vice-president of marketing and sales at Uni-core Chemical, a chemical distributor in Rolling Meadows, Ill.

NORMAN D. TOMIELLO has joined Diamond Crystal Salt Company as marketing manager for industrial products. PETER R. WARE has joined Sybron Chemicals Inc. as technical representative. RAJ MEHTA has been named program leader, internally coated containers, in the surface-treated products department of Air Products & Chemicals Inc.

KATHERINE M. WILHARM has been appointed senior customer service manager for the Los Angeles area at Unocal Chemicals Division of Unocal Corporation. CHRISTOPHER L. JENKINS has been named vice-president chemical trading at ICC Trading, a wholly-owned subsidiary of ICC Industries Inc. STEPHEN M. TURNER has been appointed a product manager at Norton Company.

DR. BRYANT W. ROSSITER has been ap-



J. Scropo L. Blair

Southland Appoints Sales Representatives

Southland Corporation has named Larry Lefalver and Larry Bergstrom chemical sales representatives.

Mr. Lefalver previously held technical and sales positions with Sherwin Williams Chemicals and Viscosity Oil Company.

Mr. Bergstrom was formerly associated with Van Straaten, E.F. Houghton and Nalco Chemical.



L. Lefalver L. Bergstrom

pointed president of Viratek Inc. and vice-president of ION Pharmaceuticals Inc. NORMAN J. RUBASH has been named executive vice-president (international) at Amoco Production Company. DR. ROLAND GREENBERG has been appointed scientific director of licensing for E.R. Squibb & Sons Inc.

LEROY R. PEEK JR. has been named technical development manager for paper devel-



T. Armstrong J. Graham

opment at National Starch & Chemical Corporation. ALLEN BUCKLER has been appointed district sales supervisor for adhesives, and JEFFREY ATKINSON has been named director of market development in the company's Industrial Starch Division.

MEETINGS CALENDAR

SEPTEMBER 8, 1986

THIS WEEK

AMERICAN CHEMICAL SOCIETY, 192nd annual meeting, Anaheim Convention Center, Anaheim, Calif., September 7-12.
CHEMICAL MARKETING RESEARCH ASSOCIATION, world chemical congress, jointly with the chemical marketing and economics division of the American Chemical Society, "The Chemical Industry: Where in the World is it Going?", Newport Resort Hotel, Newport Beach, Calif., September 7-10.
COUNCIL FOR RESPONSIBLE NUTRITION, annual meeting, "Health Messages: New Directions and New Opportunities," J.W. Marriott Hotel, Washington, D.C., September 7-10.

THIS MONTH

ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS, 100th International meeting and exhibition, The Registry Hotel, Scottsdale, Ariz., September 15-18.
CANADIAN CHEMICAL PRODUCERS ASSOCIATION, international symposium on transportation emergency response, Vancouver, B.C., Canada, September 14-18.

CHLORINE INSTITUTE, Fall meeting, The Homestead, Hot Springs, Va., September 21-25.
CONFERENCE BOARD, business outlook conference, Waldorf-Astoria Hotel, New York, September 24-25.
COUNCIL FOR CHEMICAL RESEARCH, annual meeting, Northwestern University, Evanston, Ill., September 28-30.
FERTILIZER INSTITUTE, world fertilizer conference, "Global Trading Patterns," Hyatt Regency Hotel, San Francisco, Calif., September 14-16.
PULP CHEMICALS ASSOCIATION, 13th International annual meeting, Waldorf-Astoria Hotel, New York, September 15-17.
SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSOCIATION, OSHA compliance trade fair and seminar, Intercontinental Hotel, New Orleans, La., September 26-28.
WOMEN IN FLAVOR & FRAGRANCE COMMERCE, annual open dinner meeting, Loew's Glenpointe, Teaneck, N.J., September 25.

OCTOBER

AMERICAN MICROCHEMICAL SOCIETY, eastern analytical symposium, jointly with American Chemical Society, September 28-30.

ociety and Society for Applied Spectroscopy, New York Hilton Hotel, New York, October 20-24.
ASSOCIATION OF THE NON-WOVEN FABRICS INDUSTRY, eighth international conference and exhibition, Georgia World Congress Center, Atlanta, Ga., October 21-23.
CHEMICAL GROUP, NATIONAL ASSOCIATION OF PURCHASING MANAGEMENT, Fall Conference, Marriott Pavilion Hotel, St. Louis, Mo., October 21-23.
COMMERCIAL DEVELOPMENT ASSOCIATION, impact of mergers and acquisitions on the future of technology-driven corporations, Hershey Hotel, Hershey, Pa., October 28-29.
EUROPEAN CHEMICAL MARKETING RESEARCH ASSOCIATION, 1986 conference, "The Chemical Industry Faces the Future," Swissotel Europe, Antwerp, Belgium, October 13-15.
EUROPEAN PETROCHEMICAL ASSOCIATION, annual meeting, Monte Carlo, Monaco, September 28-October 1; distribution meeting, October 19-October 22.
FIRE RETARDANT CHEMICALS ASSOCIATION, Fall conference on proper processing and selection of flame retardants, Kiawah Island, S.C., October 19-22.
SOCIETY OF CHEMICAL INDUSTRY, chemical industry model dinner, Plaza Hotel, New York, October 15.

SOCIETY OF THE PLASTICS INDUSTRY, plastics news and conference — South, jointly with the Society of Plastics Engineers, Georgia World Congress Center, Atlanta, Ga., October 8-10.

LATER ON

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION, seminar on aerosol technology, Renaissance Hotel, O'Hare, Rosemont, Ill., October 27-29; Fall meeting, Marriott's Harbor Beach Resort, Fort Lauderdale, Fla., December 7-11.
FERTILIZER ROUND TABLE, Generation 1990, 1st, Baltimore, Md., November 17-19.
FRAGRANCE MATERIALS ASSOCIATION OF THE UNITED STATES, 10th International conference on fragrance materials and flavors, Omni Shoreham Hotel, headquarters hotel, Washington, D.C., November 18-20.
K-86, 10th International trade fair for the plastics industry, Düsseldorf, West Germany, November 6-12.
LATIN-AMERICAN PETROCHEMICAL ASSOCIATION, 8th annual meeting, Rio Palace Hotel, Rio de Janeiro, Brazil, November 22-25.

BUSINESS BRIEFS

AIR PRODUCTS & CHEMICALS INC. has introduced "Dabco" HE and SE high-performance urethane catalysts based on proprietary new chemistry for use in ethylene glycol extended-polyether and ethylene glycol-extended polyester foam formulations. Both catalysts provide delayed cream time upon accelerated demold time, or a combination of both, depending on the formulation, according to Air Products.

AKZO CHEMIE AMERICA has expanded production capacity for the "OctaBoost" 818 catalyst at its Kefjen Catalytic facility in Pasadena, Tex. The catalyst improves both research octane number and motor octane number of gasoline by selectively producing naturally higher octane aromatics and olefins while maintaining gasoline selectivity and conversion, Akzo says.

AKZO CHEMICAL COMPANY has realigned management functions in its Oxygenated

Business Group. Charles L. Benjamin, vice-president of sales, now heads an expanded department that includes marketing and sales. Wayne D. Kuhn, formerly vice-president of oxygenated fuels, is now vice-president of oxygenated co-products.

ASEAN OLEOCHEMICAL Manufacturers Group elected a chairman and board of directors at its first meeting in the Philippines last month. Roy de Vries of Malaysia was elected chairman for 1986-88. In the past decade, Asean has become a major center for producing chemicals from palm oil, coconut oil, palm kernel oil and other natural oils.

BETZ PROCESS CHEMICALS INC., Woodlands, Tex., has introduced a high temperature antifoulant for refinery coke furnaces. The antifoulant is a multicomponent solution specifically formulated to inhibit coking reactions catalyzed by furnace tube metal-lurgy at the boundary layer between feedstock and furnace tubes, Betz says.

M.F. CACHAT COMPANY has changed its location to 1391 West 110 Street, Cleveland, Ohio. Cachat's new facility provides larger warehouse and office space, according to the company.

DU PONT COMPANY is offering \$350 million of 7.5 percent notes due 1993. The seven-year notes will be offered at 99.48 percent to yield 7.6 percent. The notes are callable at par on or after August 16, 1991. Net proceeds from the issue will be used for general corporate purposes, including capital expenditures, working capital requirements and acquisitions, and for the reduction of outstanding debt.

EUROPEAN CHEMICAL MARKETING Research Association will present the first Lawrence Wadham Award to Sumio Takeuchi of Mitsubishi Corporation at the ECMRA conference in Antwerp next month. Mr. Wadham, founder chairman of ECMRA, is the only non-American to have been awarded the

Distinguished Service Award of the American body, CMRA.

GENERAL ELECTRIC Laboratories in Waterford, N.Y., has developed a new solventless, high-purity semiconductor coating which may eliminate many of the application and performance shortcomings of semiconductor coating materials currently available, according to GE. The new material, a single-component system based on patented silicones technology, is suggested for use as a passivating coating for the protection of semiconductor surfaces and related circuitry.

STAUFFER CHEMICAL COMPANY's Basic Chemicals Division is offering food grade quality liquid sulfur dioxide in large quantities and bulk shipments. Certified to meet all Food Chemical Codex requirements, the product will be priced at \$240 per ton in tank trucks or railcars, f.o.b. company producing locations at Hammond, Ind., Baton Rouge, La., and Houston, Tex.